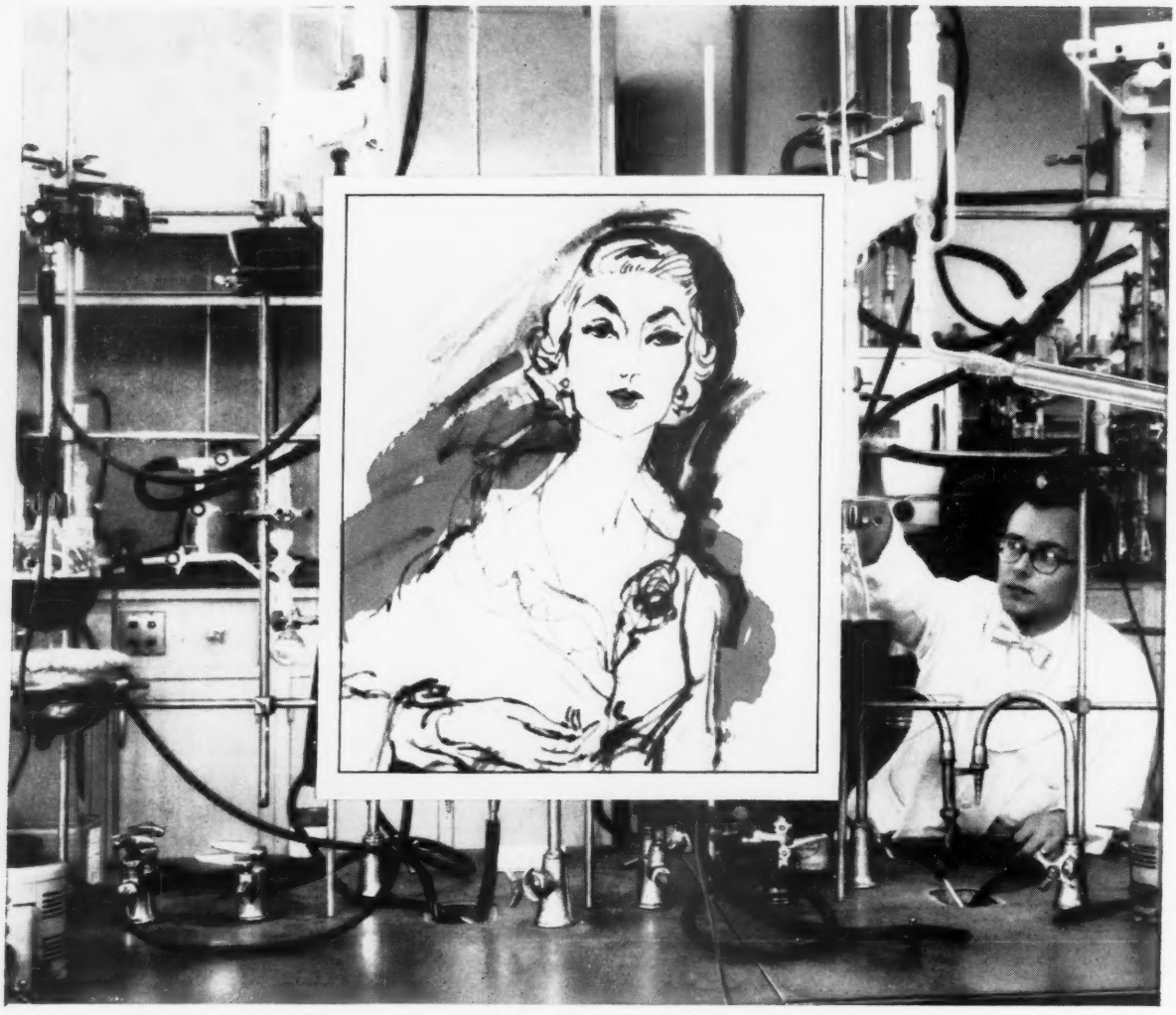
SEPTEMBER 1957

Drug and Cosmetic Industry

Editor THOMAS F. PARRELL
Managing Editor JOSEPH SPAULDING
Technical Editor JOSEPH KALISH, Ph.D.
Raw Material Editor HARRY G. KELBLY
Production Consultant FRANCIS CHILSON
Art Director MAX FRANKEL

INCLUDING PACKAGING & SELLING



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Feature Articles

299 **Sunburn and its Control Part 1**
by Emil G. Klarmann, Sc.D.

302 **Pharmaceutical Aerosol Symposium**

304 **SCC European Tour**
by Audrey Langdon

306 **Dimethyl Hydantoin Derivatives**
by Samuel Cohen

308 **Consumer Evaluations of New Products**
by M. L. Rittenhouse

310 **Money in the Till: Workable Incentives**
by Mike Kadison

312 **Lontab Repeat Action Tablets**
by Jack Cooper

314 **The Williams Bill HR 9153**

●

Packaging and Selling Section

317 **Houbigant's Hermetique Atomizer**

321 **Tilford's Packaging Feat**

323 **Packaging and Selling**
by Frazer V. Sinclair

331 **News in Packaging**

●

Departments

291 **Keeping Posted**
by Thomas R. Farrell

332 **Patent Thoughts and Trends**
by Thomas Cifelli, Jr.

340 **News**

355 **Management Forum**
by Francis Chilson

364 **Advancing Therapy**
by Joseph Kalish, Ph.D.

367 **Compounder's Corner**
by Joseph Kalish, Ph.D.

372 **Perfumer's Shelf**
by Joseph Kalish, Ph.D.

375 **Skin Research**
by Joseph Kalish, Ph.D.

382 **Trade Literature**

390 **Readers' Questions**
by Joseph Kalish, Ph.D.

405 **Industry's Books**
by Harry G. Kelbly

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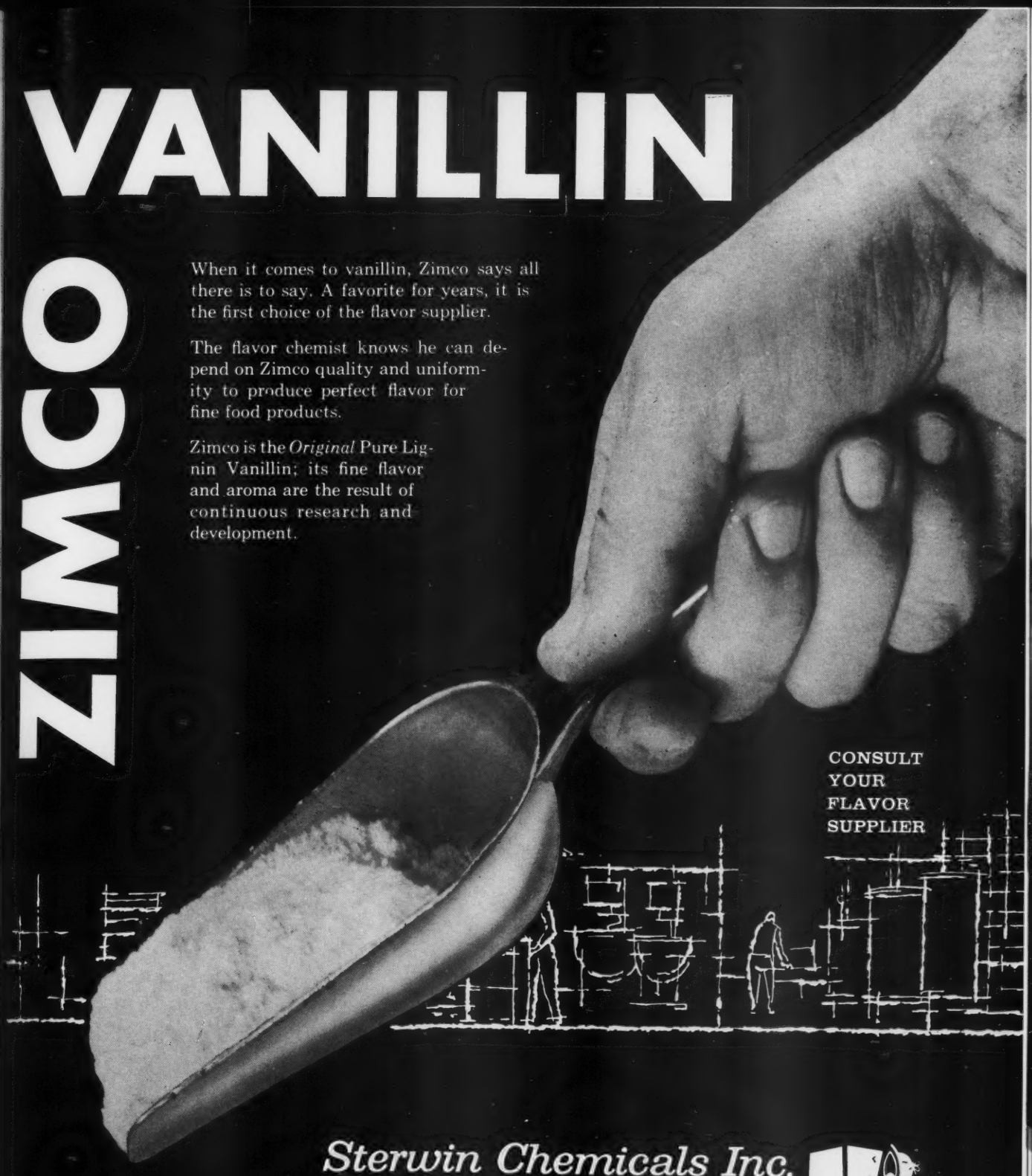

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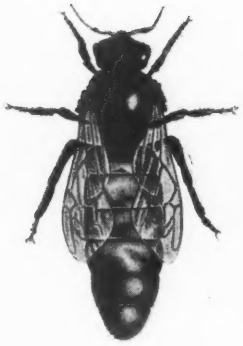

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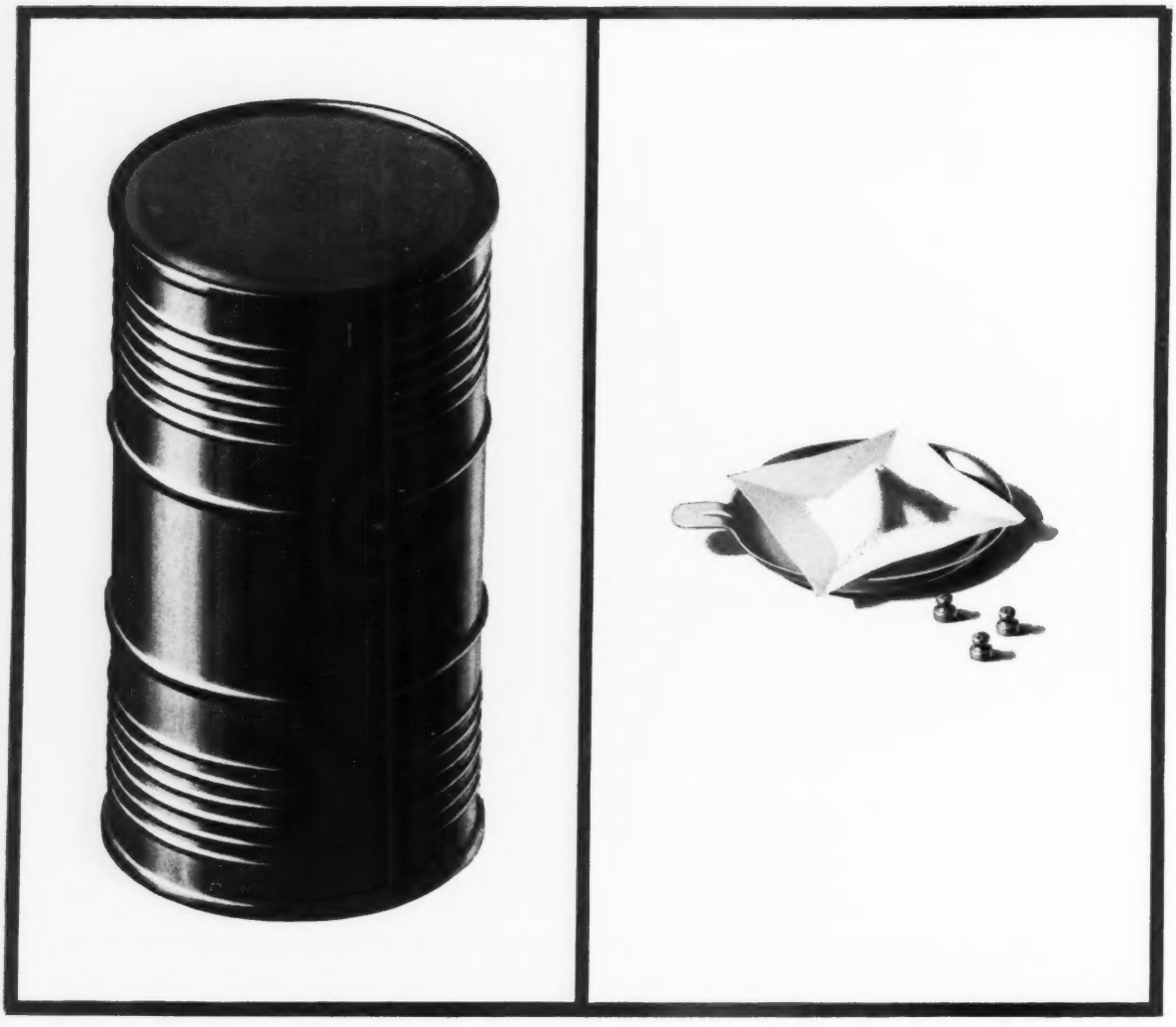

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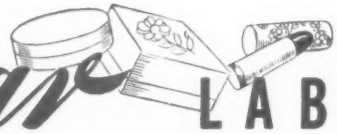

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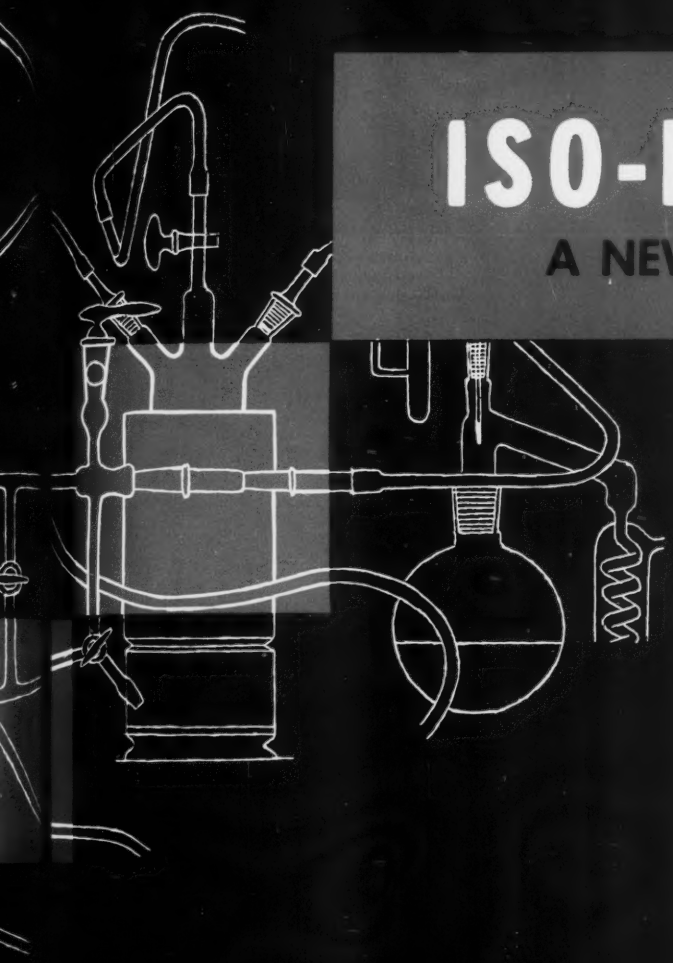

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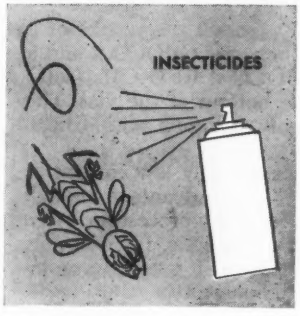

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Superiority of GROCO 2 RED OIL revealed in unretouched photograph of low temperature test. Samples of GROCO 2 (left) and competitive red oil (right) were refrigerated at 36°F. for 24 hours side by side. No solids separated out of GROCO 2 RED OIL—it remained so transparent that technician's fingers and steel tray are clearly visible through vial. On right, solid acids separated in large amount.

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The unretouched photo above shows the results of a recent low temperature test between GROCO 2 and a competitive red oil. The GROCO 2 RED OIL (left) remained crystal clear to the bottom of the vial. The other material became heavily opaqued with frozen saturated acids.

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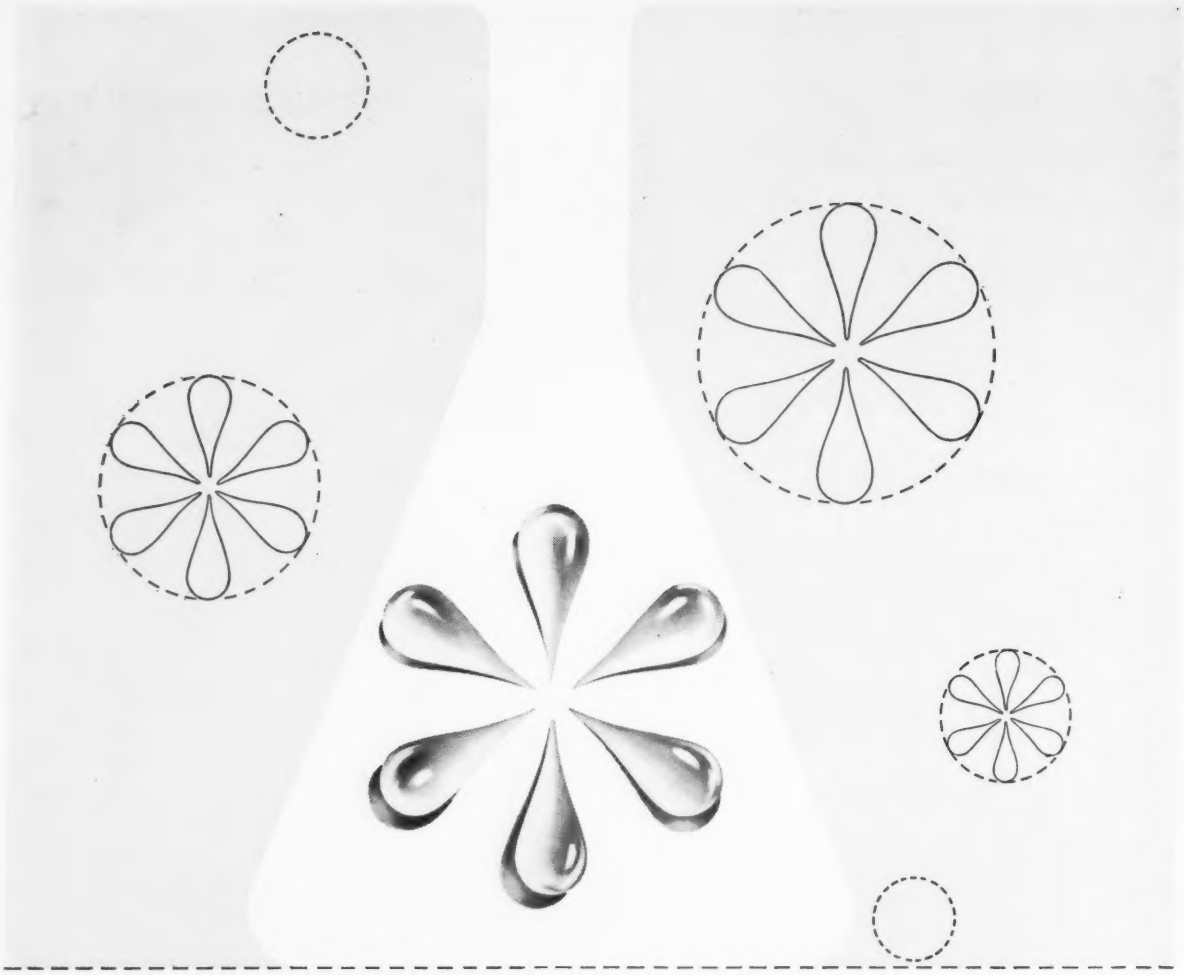

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No. T-17

The Miranol Chemical Company, Inc.
275 Coit St., Irvington, N. J.

EYE IRRITATION TEST
REPORT

We have tested your sample of 20 per cent Miranol C2M for eye irritation according to the method of Draize, Woodard and Calvery. 0.1 cc of the sample was instilled in the conjunctival sac of rabbits. One eye was used for the test, while the other eye was used as a control. The eyes of the animals were observed after 1, 24 and 48 hours.

Results

The following results were obtained on the cornea, iris and conjunctiva:

	Instilled eyes		
	1 hour	24 hours	48 hours
Cornea	0	0	0
A. opacity	0	0	0
B. area of cornea involved	0	0	0
Iris	0	0	0
Conjunctiva	0	0	0
A. redness	0	0	0
B. chemosis	0	0	0
C. discharge	0	0	0
Totals			
Control eyes Totals	0	0	0

Conclusions

The above results showing the total readings of 0, 0 and 0 after 1, 24 and 48 hours indicate that the submitted sample of Miranol C2M is not irritating to the eyes of rabbits.

Respectfully submitted

Dr. Louis Barail

Dr. Louis C. Barail

DR. LOUIS C. BARAIL
Consulting Biochemist and Toxicologist
10 EAST 43RD STREET
NEW YORK 17, N. Y.

The Miranol Chemical Company, Inc.
275 Coit St., Irvington, N. J.

No. T-18

SKIN IRRITATION TEST
REPORT

We have examined a sample of 20 per cent Miranol C2M to determine whether it contains primary skin irritants. The method used was the animal introdermal single injection method.

0.5 cc of a 5 per cent solution of the sample was injected with aseptic precautions intradermally into rabbits. As a control, 0.5 cc of a 5 per cent solution of olive oil castile shampoo was also injected under the same conditions into the animals.

Twenty-four hours after the injection, the animals were observed for the presence of skin irritation in comparison with that of olive oil castile shampoo.

Results

Samples	Reaction on skin
20 per cent Miranol C2M	–
Olive oil castile shampoo	++

Legend
– No irritation
\+ Slight reaction
\++ Definite reaction
\+++ Very definite reaction
\++++ Very definite and spreading reaction

Conclusion

The above results indicate that the sample of 20 per cent Miranol C2M is not irritating when injected intradermally into rabbit skin.

Respectfully submitted

Dr. Louis Barail

Dr. Louis C. Barail

A NON-IRRITATING AMPHOTERIC SURFACTANT

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MIRANOL C2M CONC. is a new amphoteric surface active agent which is completely non-irritating as proved by laboratory tests. Chemically it is a dicarboxylic analogue of MIRANOL CM CONC., the coconut derivative of the MIRANOL M SERIES. It has an active content of 50%. The product has a pH of 7.8 measured directly and 8.1 in 20% solution in local tap water.

As the intradermal injection test report shows (the severest test of its kind) MIRANOL C2M CONC. caused no reaction (-) whereas the accepted standard for mildness (Olive Oil castile shampoo) caused a "definite reaction" (+ +). Water causes a slight reaction, thereby proving to be more irritating than MIRANOL C2M CONC. Practically all surface active agents show irritation ratings of + + to + + + or higher.

Where the complete absence of irritation is desirable, MIRANOL C2M CONC. should be used. It is recommended for the formulation of shampoos, hand soaps, rug shampoos and all household and/or industrial cleaner formulations. As a shampoo, MIRANOL C2M CONC. is a profuse and instant flash foamer, even on first application. Due to its substantivity, the hair is left in excellent and manageable condition, simulating that of a cream rinse. Crystal clear products with exceptional temperature stability can easily be formulated.

MIRANOL C2M CONC., when combined with normally irritating surfactants, will materially reduce or even completely eliminate all irritating properties.

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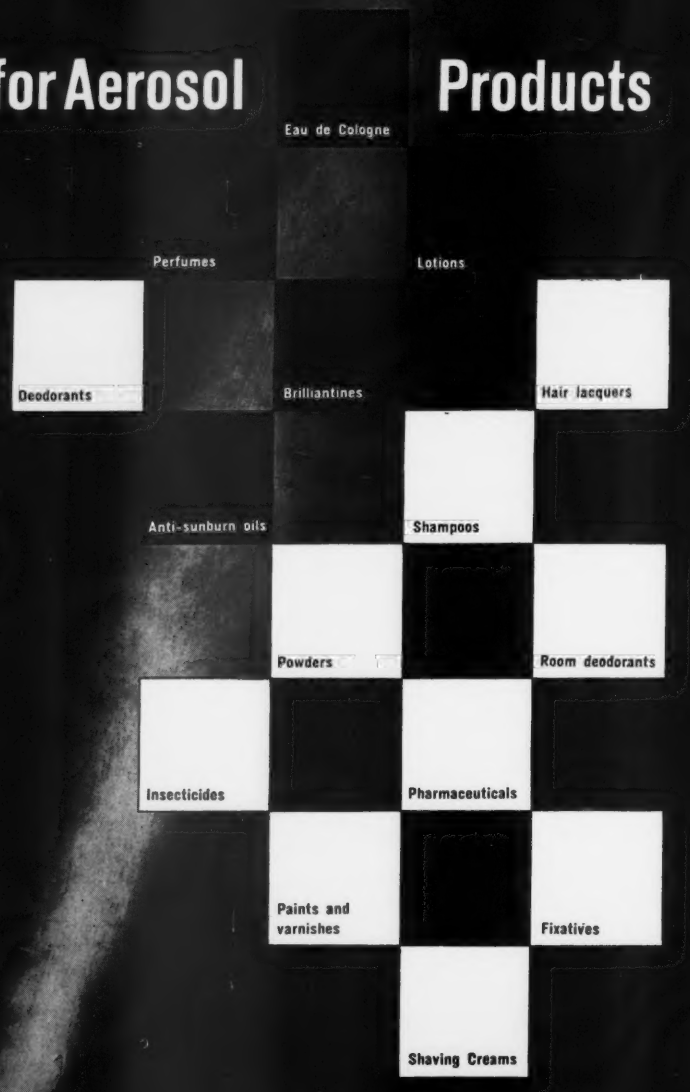
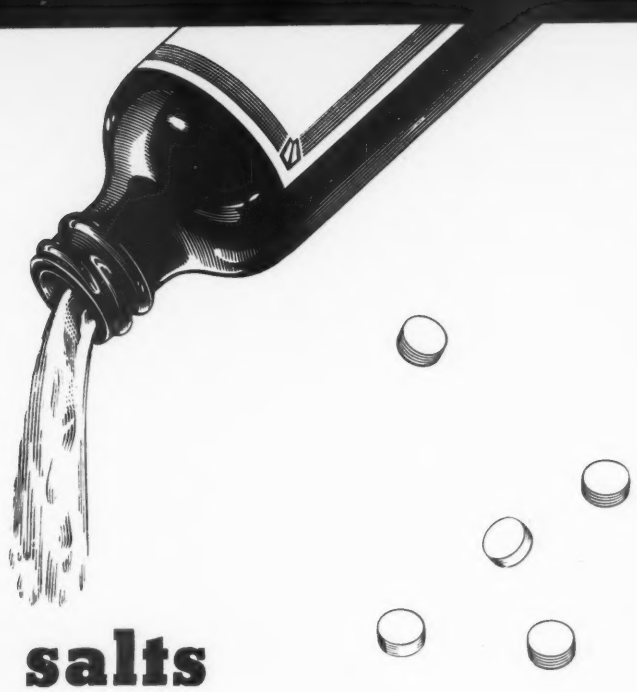


Polak & Schwarz Inc., 667 Washington Street, New York 14 (N.Y.)



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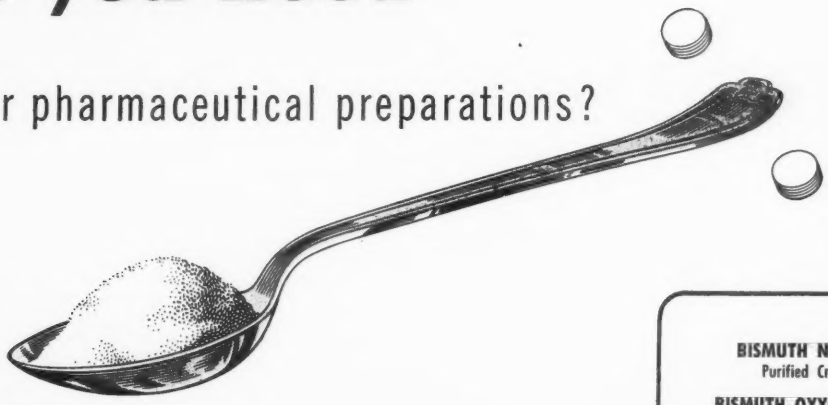

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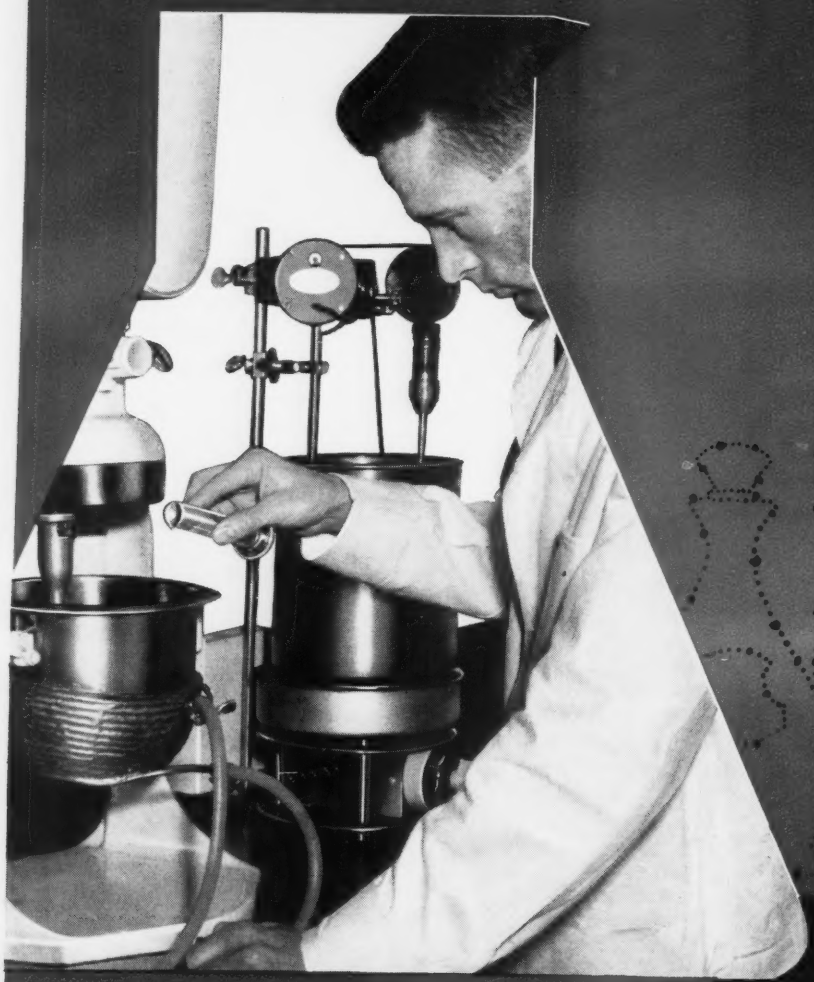

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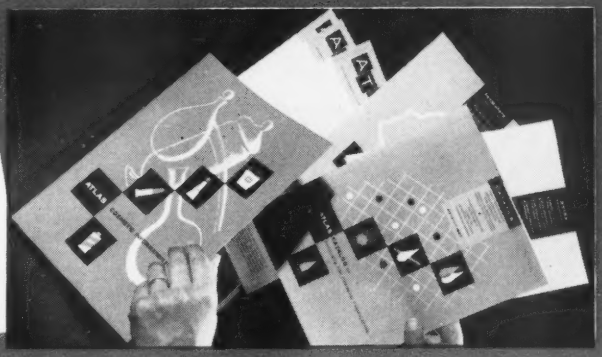

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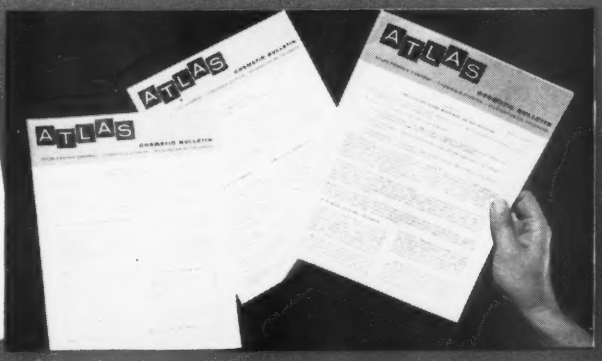

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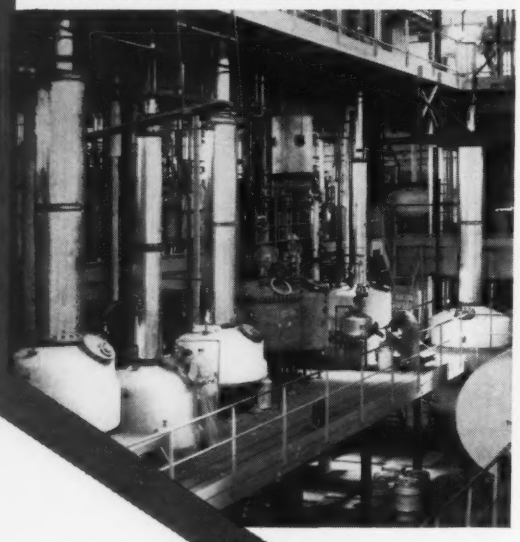

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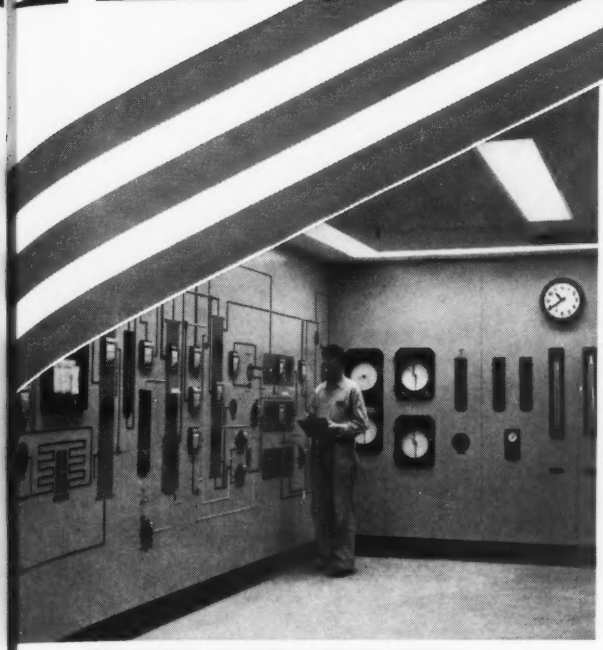

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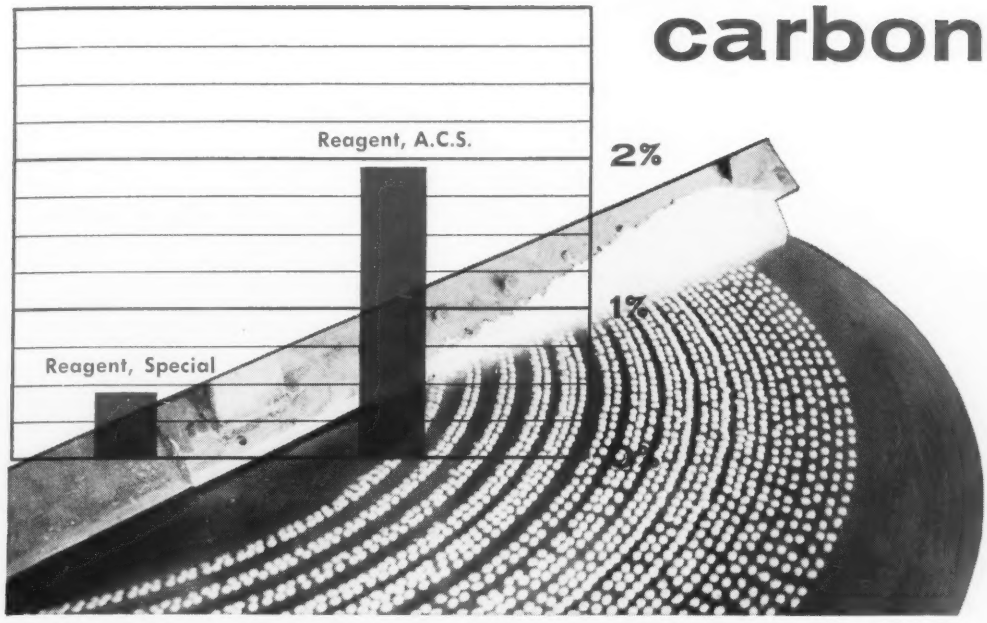

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Heavy Metals (as Ag)	0.002%
Iron (Fe)	0.001%
Potassium (K)	0.05 %

SODIUM HYDROXIDE
Pellets, Reagent, A.C.S.

NaOH	M.W. 40.00
Assay (NaOH)	Min. 97.0 %
MAXIMUM LIMIT OF IMPURITIES	
Sodium Carbonate (Na_2CO_3)	2.0 %
Chloride (Cl)	0.005%
Nitrogen Compounds (as N)	0.001%
Phosphate (PO_4)	0.001%
Sulfate (SO_4)	0.003%
Ammonium Hydroxide Precipitate	0.020%
Heavy Metals (as Ag)	0.002%
Iron (Fe)	0.001%
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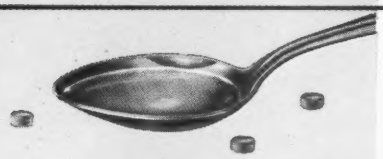
ORAL LIQUIDS SOLUBLE TABLETS		0.1% Trituration of Cyanocobalamin (CRYSTALLINE VITAMIN B_{12}) with Mannitol. Merck Product No. 69308.
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Very fine, uniform, pink, odorless powder. Mesh: All passes No. 100.	Purity, solubility, stability, prediluted with soluble carrier for convenience in weighing.	Capsules and soluble powder formulations.
Very fine, uniform, pink, odorless powder. Mesh: All passes No. 100.	Purity, stability, prediluted with insoluble non-hygroscopic carrier.	Other dry formulations.
Uniform, pink, homogeneous granular powder. Mesh: All (Min. 99.5%) passes No. 80.	Increased stability under certain adverse conditions. Convenient dilution of the pure Crystalline product.	Water-soluble formulations.

Cobalamin Concentrate may be used, provided the adequate stability is established by pretesting.

Uniform, pink powder. Mesh: All passes No. 100.	Dry dilutions of uniform Cobalamin potency derived from non-crystalline Cyanocobalamin in an insoluble non-hygroscopic carrier.	Capsules and tablets.
Uniform, pink, free-flowing powder. Mesh: All passes No. 70; Max. 2% retained on No. 80; Max. 15% passes No. 325.	Dry dilutions of uniform Cobalamin potency derived from non-crystalline Cyanocobalamin in a soluble carrier.	Capsules and tablets. Soluble tablets and powder.

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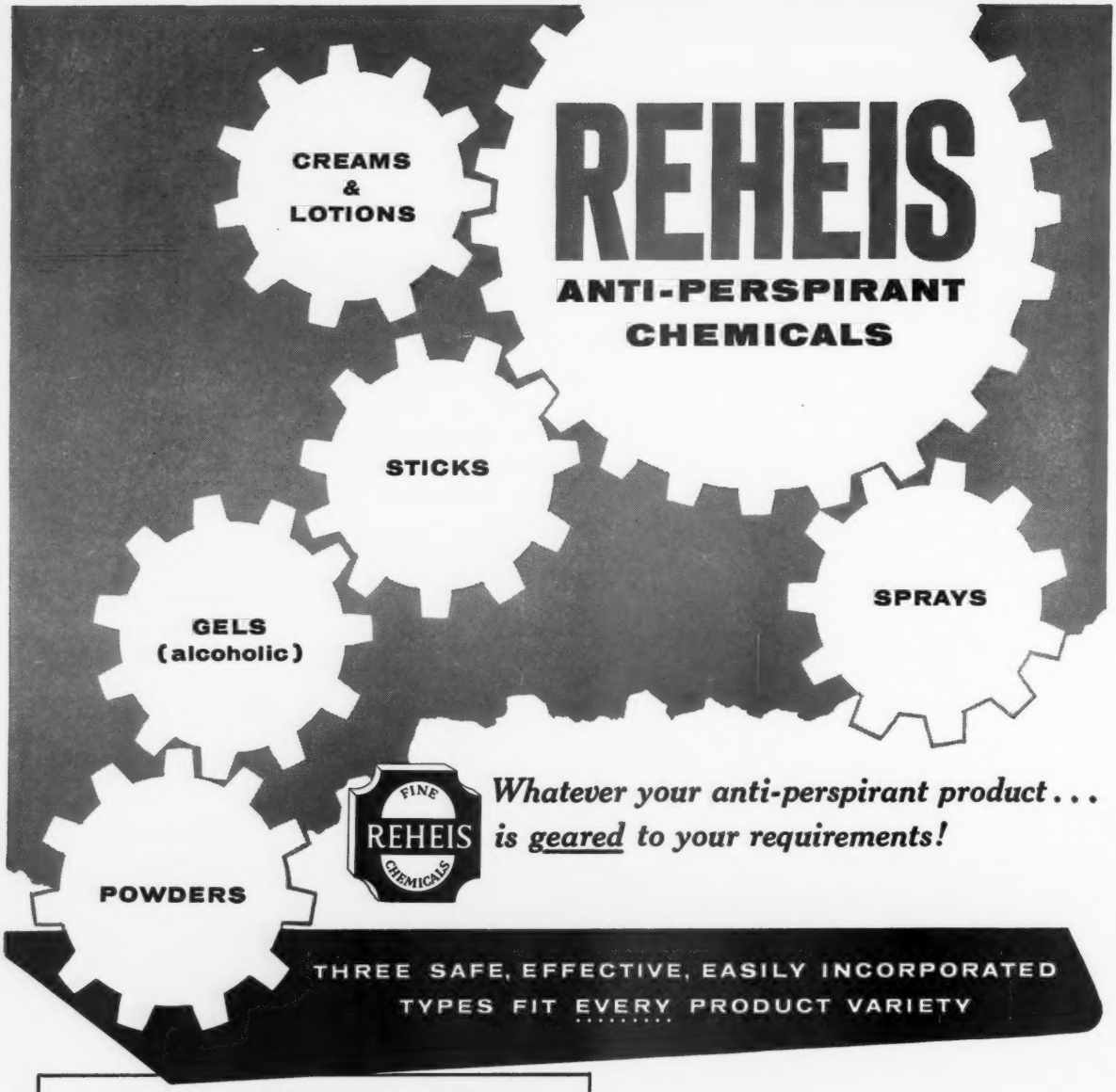

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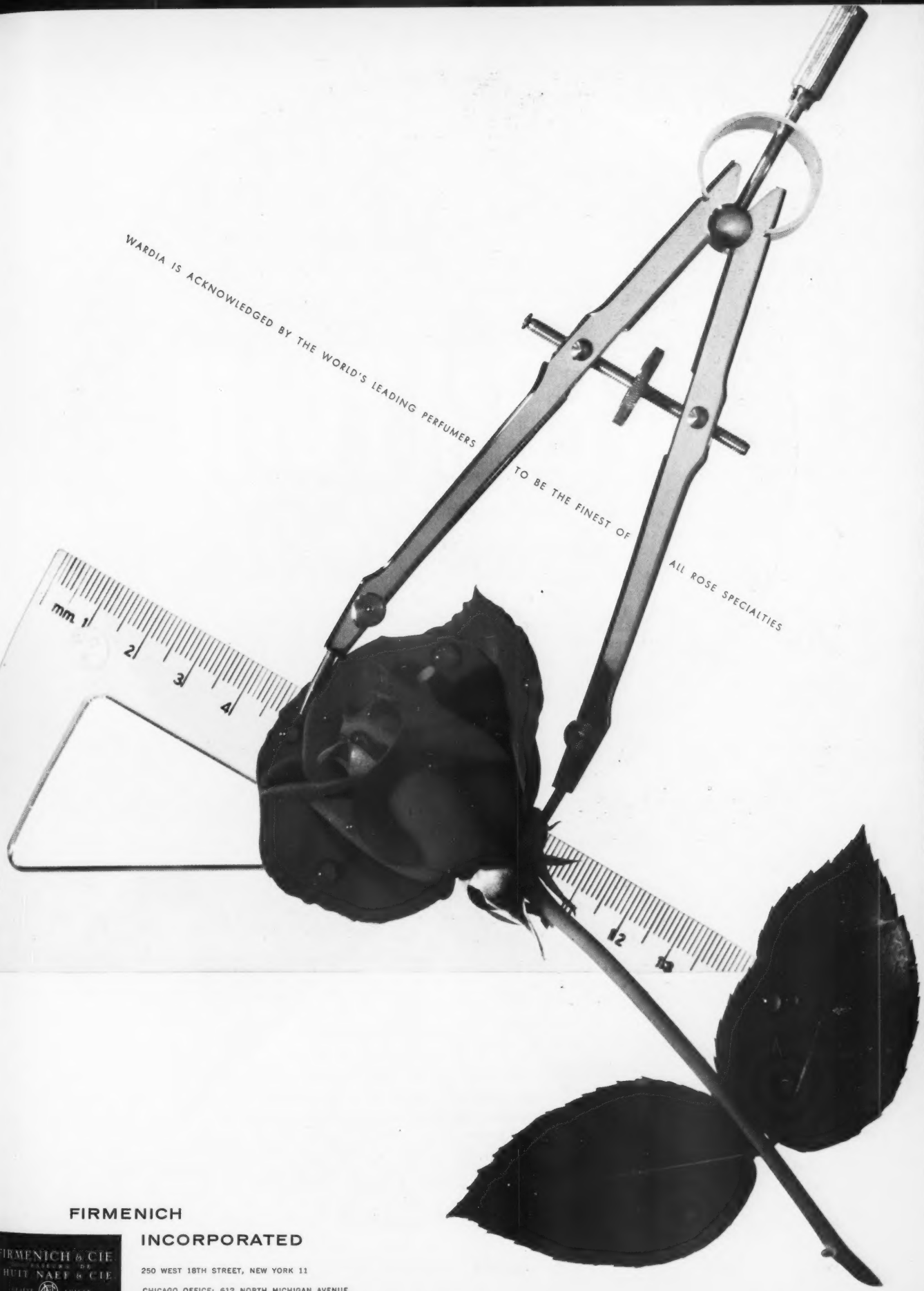

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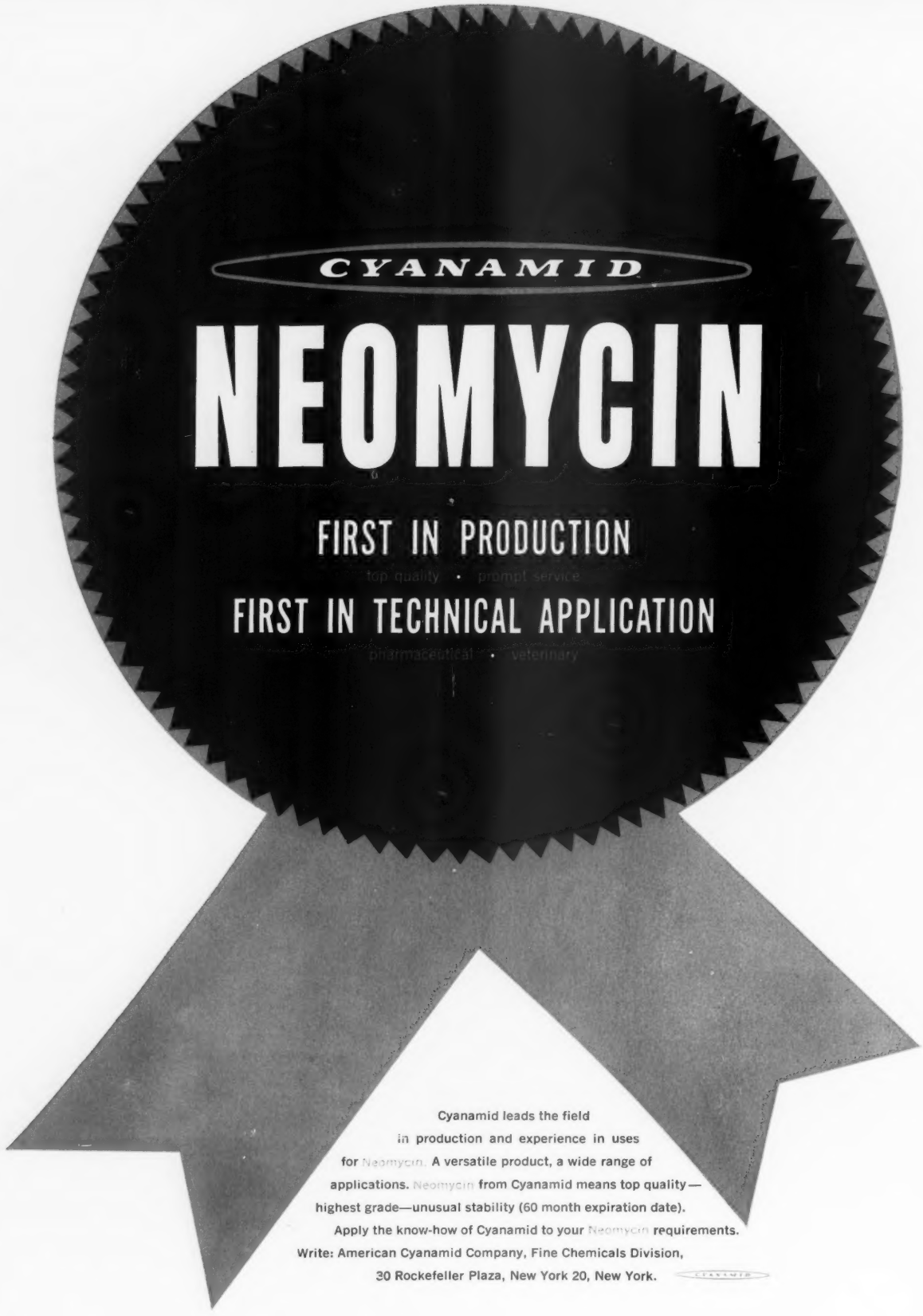

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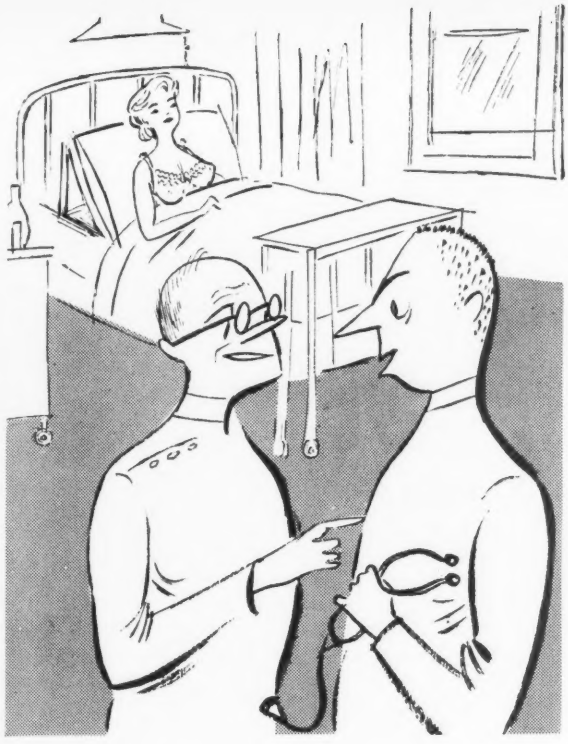

"Okay. Today it's your turn to test her heartbeat."

Keeping Posted

Polio Vaccine Price Fix Charged

"Polio vaccine prices exhibited an unusual resistance to the law of supply and demand." So states the house committee on government operations in a report issued last month. The committee has urged the Department of Justice to widen the scope of its vaccine investigation to include other drugs and hospital supplies sold to the government.

The report, based on findings of a subcommittee headed by Rep. L. H. Fountain of North Carolina, asserts that hundreds of identical bids on polio vaccine were received by federal and state agencies. The report states that this indicates a price fixing conspiracy. Furthermore, according to the report, the Department of Health, Education and Welfare "did not exercise a proper regard for economy and efficiency" in its handling of the nation's polio vaccine program.

The committee states that the vaccine price for Public Health Service was double that of the National Foundation for Infantile Paralysis and that the agency received no quantity discount. And the committee charges that HEW made no legitimate effort to determine vaccine production costs.

Habit-Forming Drugs List Proposal

Use of trade or proprietary names as official or common names of habit-forming drugs will be discontinued if the Food and Drug Administration goes ahead with plans to change its regulations so as to more accurately identify such drugs. The agency wants to list trade and official names separately in the belief that this will facilitate identifying drugs involved in court actions. The FDA has announced that it does not plan to change its current list of habit-forming drugs, and it has indicated that the proposed changes may be modified, rejected or adopted. Written comments by interested persons will be accepted until September 20. Notice of the proposal was published in the August 20 Federal Register, which lists the drugs affected.

Trade names were used on an official identification of certain drugs in the original regulations because official or unprotected names were not known when the rules were drafted, FDA explains. Now the agency wants to list trade name and official names separately.

For instance, seconal sodium, the trade name for sodium - 5 - allyl - 5 - (1-methylbutyl)—barbiturate, has been recognized as the official name for the drug as well. Under the rules changes, secobarbital sodium would be the official name of the preparation.

FDA's regulations would include all the official title of habit-forming drugs appearing in the standard drug compendia. The chemical names of derivatives and their parent substances would continue to be listed.

Pharmaceuticals, Inc. Buys Williams

The J. B. Williams Company has been acquired by Pharmaceuticals, Inc. "With the Williams purchase we have acquired some of the most famous trademarks in America," Harry Parness, vice-president in charge of sales for Pharmaceuticals, Inc., has said. "To achieve the top position in the men's toiletry field, we are going to initiate an unprecedented advertising campaign on behalf of Williams' products."

Mr. Parness also said "Pharmaceuticals, Inc., will initiate a new trade policy on the Williams line, a policy that will assure fast turnover, attract new customers and offer big profits."

Gillette Forms Proprietary Division

The Gillette Company through a newly created division, Gillette Laboratories, seeks to add one or more proprietary drug products to its line, according to Carl J. Gilbert, president of Gillette. Principal offices of Gillette Laboratories will be located in Chicago. A major step toward its entry into the proprietary field has been the recent completion of consulting and manufacturing arrangements between Gillette and The Upjohn Company.

Gillette has not yet finally determined what product or products will be marketed by Gillette Laboratories but does not intend to become a long-line pharmaceutical house, Mr. Gilbert stated. The company's

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Paper: Produces better pigment dispersions, smoother coatings. Improves wet strength and ink receptivity.

Inks: Better gloss and pigment dispersion. Increases solubility of dyestuffs and prevents gelation. Can improve ball-point inks, typewriter ribbons and carbon papers.

Textiles: Prevents flocculation of titanium dioxide in delustering of synthetic fibers. Adaptable as warp size for acetate and viscose. Improves other sizes. Improves dye receptivity of hydrophobic fibers. Dye scavenger in print washes.

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policy will be to concentrate on the development and distribution of a limited number of improved proprietary drug items. He said that Gillette Laboratories will soon test-market a new cough remedy.

Syntex Suing Schering and Merck

Syntex, S.A. has announced that it has filed suit against Schering Corporation for infringement of Syntex's patent covering prednisone, prednisolone and other steroids of similar chemical structure. The suit was brought in the U.S. District Court in New Jersey, and Merck & Co., Inc., was also joined as the defendant in the action.

Syntex claims that the Schering "Meti" drugs infringe Syntex's U.S. Patent No. 2,579,479 and is seeking an accounting of Schering's profits from the sales of its "Meti" drugs and treble damages for infringement since 1955. Syntex asserts that treble damages are warranted because of Schering's actions during the period of the infringement. Similar claims are made against Merck.

A Syntex spokesman said that two other U.S. pharmaceutical firms have recognized and have licenses under the Syntex patent, which is the only patent presently issued covering prednisone or prednisolone. He further stated that a vice-president of Schering admitted in 1956 in testimony before a U.S. Senate Subcommittee on Patents that Schering is infringing Syntex's patent. Syntex understands that Schering challenges the validity of Syntex's patent and has brought suit for that purpose in the U.S. District Court in Washington; however, Syntex has not yet been served with a complaint in that action.

The suit brought by Syntex is independent of a pending interference proceeding in the U.S. Patent Office relating to application by Syntex, Schering, Merck and others for a specific patent on prednisone.

FDA to Examine Label Warnings

Since the House Government Operations Sub-committee during its hearings last month called attention to the small type in which warnings are being printed on packages, FDA Commissioner George P. Larrick has stated that it is his intention to conduct a survey to determine the adequacy of such warnings. He called attention to the fact that Section 502 (c) of the Federal Food, Drug and Cosmetic Act provides, in substance, that required information must be printed in a plain and conspicuous manner and in a type size comparable with other statements made in labeling.

Curtis Denies FTC Charges

Helene Curtis Industries, Inc. has denied Federal Trade Commission charges that its television advertising falsely represents that "Enden Shampoo" will cure dandruff problems by declaring that this product will stop these problems as claimed in the company's advertising.

Answering the FTC's July 26 complaint, the company asserted the typical TV commercial cited does not "fairly represent the effect of the sequence upon the viewer." (This commercial shows a man smiling happily after shampooing and combing his hair; during the video sequence the announcer makes claims such as " . . . don't you know there's a new *proven* way to end your dandruff problems once and for all?" and "I say . . . if you've got dandruff problems, ENDEN is sure the easiest way to stop them . . . for good.")

The company denied that its advertising "when interpreted as a whole" implies that Enden will cure dandruff. The entire advertisement, the company said, "is reasonably understood to mean that the use of Enden will stop . . . unsightly flakes . . . (and) itching . . . and will inhibit the growth of bacteria commonly found where dandruff problems exist."

The complaint also had charged that the product will not have any lasting effect on dandruff because the condition will return if regular use is discontinued. This charge is irrelevant, the company said, and customers are aware that the advertising implies that periodic shampooing is assumed or is understood.

The company denied the public is deceived and asked that the complaint be dismissed.

White Labs and Schering Merger Proposed

A proposed merger of Schering Corporation and White Laboratories, Inc., will be decided September 19 at special meetings of the stockholders of both companies. Schering and White boards of directors have approved the proposal.

The merger terms provide for a two-for-one split in the present common shares of Schering and the creation of 278,983 shares of a new class of 5 per cent cumulative preferred stock, par value $30. The White shareholders would receive 1½ shares of the new Schering common and one share of the new preferred in exchange for each share of Class A or Class B stock held. White has a total of 274,593 shares of the two classes of stock outstanding.

At present, there are 2,250,000 shares of 15 cents par value of Schering common stock authorized, of which 1,760,000 are outstanding. The authorized shares would be increased to 6,000,000 with $1 par value. The remaining authorized stock of Schering not needed for the split and for acquiring the White stock would be held for future capital needs.

The companies, including White's wholly owned subsidiary, Pharmaco, Inc., would continue to be operated under their present names and management.

Francis C. Brown, president of Schering, and James C. DeCesare, president of White, said the products of these companies complemented each other in different segments of the pharmaceutical market.

Public Health Assn. Meeting

Reports on a wide variety of research projects aimed at protecting and advancing people's health will be highlights of the five-day 85th annual meeting of the American Public Health Association and meetings of 40 related organizations in the Cleveland Public Auditorium beginning Nov. 11.

Dr. Reginald M. Atwater, executive secretary of the association, has announced that of about 400 scientific papers to be presented in 75 sessions, more than half will be reports on research accomplishments or opportunities.

"Public health today is acutely research-conscious," Dr. Atwater said. "There is general realization of the

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fact that yesterday's methods will not be practical in coping with tomorrow's health problems. This year's APHA annual meeting will give research workers an opportunity to share their findings with other health specialists whose job it is to translate research into action programs aimed at promotion of personal and community health, the maintenance of a healthful environment and an aggressive attack on disease and disability."

There will be a panel discussion on influenza, including epidemiology, status of vaccine production and utilization, control measures and laboratory services. This session is scheduled for Thursday morning.

Problems of habituating drugs in industry; development and testing of new chemicals to combat cancer; statistical studies on perinatal mortality, prematurity, and the epidemiology of cancer and other diseases, and new patterns of medical care programs in hospitals and elsewhere will be discussed.

See Govt. Research as Threat to Industry

U.S. Public Health Service statistics indicate the breakdown of national medical research expenses to be as follows:

Ethical Drug Industry	$ 90,000,000
Philanthropic Institutions	30,000,000
Universities and Colleges	19,000,000
Government Agencies	186,000,000

A study from the research department of the brokerage firm of Smith, Barnery & Co. points out that in 1956 "the Government spent 57 per cent of the total money allocated in our economy for medical research. Despite the so-called economy drive going on in Congress, the amount appropriated for the current fiscal year has been increased to $222,000,000. It has become politically quite popular for Congress to spend money for research and development. Strangely enough, Government agencies find it quite difficult to spend this money efficiently and productively. The $58,000,000 allocation for cancer research, for example, is believed by many to be far beyond the facility and ability of Government agencies to handle satisfactorily. Hence, the Government has been holding conversations with companies in the industry about establishing a joint Government-industry research effort in the cancer field. This, of course, presents many problems, especially from the viewpoint of patents, which have been the backbone of the industry. A patent to an ethical drug company is the method by which the company can obtain tangible benefits for the money spent for research and edvelopment.

"The increasing Government encroachment on the past, present and future operations of the industry is a dangerous one from the viewpoint of every American. The tremendous contributions of the industry in the past have been based on a highly competitive, research-conscious industry. The rewards for success are great and the penalties for failure severe.

"In order to combat possible political danger to the industry, the companies will have to explain effectively the nature of their industry, not only to the investigating committees but to the American public as well. From an intrinsic viewpoint and of importance to the investor, it will probably mean that research costs in the industry will go up somewhat faster than might normally be expected. If the Government's interest in medical research is to be contained or maintained at the present level it will probably mean that the research expenses of ethical drug companies, which are now about 4-6 per cent of sales, will probably rise to a higher percentage level within a few years. While this undoubtedly means higher overhead costs in the next few years for the industry, it will also probably mean a higher level and rate of new product introduction which, for the successful companies, would more than offset the higher level of research expenses. For the industry to be successful, the public must first benefit. In the next five to ten years, studies will undoubtedly be made against cancer, heart disease, etc. commensurate with the industry's past contributions to human welfare."

AMA, Dermatology Society Symposium

A two-day symposium on "The Human Integument—Normal and Abnormal" will be presented Dec. 28 and 29 by the Committee on Cosmetics of the American Medical Assn. and the Society for Investigative Dermatology. Arranged at the invitation of the American Association for the Advancement of Science and to be presented before the Medical Sciences Section at the Association's 124th annual meeting in Indianapolis, the symposium will be divided into four major sessions:

I. The integument as an organ of protection; II Circulation and vascular reactions; III Sebaceous gland secretion; and IV. Pathogenetic factors in pre-malignant conditions and malignancies of the skin.

Water Fluoridation

Water fluoridation was described as "the first real step forward" in the prevention of dental decay by the chairman of the health committee of the National Congress of Parents and Teachers, writing in The Journal of the American Dental Association.

Dr. Henry F. Helmholz, of the Mayo clinic at Rochester, Minn., and professor emeritus of pediatrics at the University of Minnesota, pointed to the many years of cooperative efforts of the P.T.A. organization and the American Dental Association in "efforts to improve the dental health of children" and called for continuing efforts "to marshal the known facts on fluoridation" before the public.

"Not until the inhibitory effect of fluoride on dental caries was discovered, and fluoridation of water supplies was introduced, was the first real step forward made in the prevention of caries. No public health measure ever has been introduced, the complete harmlessness of which has been so completely proved, in advance, by nature's own experiments.

"She served thousands of people with water containing two to fourteen times as much fluoride as is necessary to reduce dental decay by more than a half. No physician would give an individual fourteen times the necessary dose just to prove that it was harmless; nevertheless, that is what nature has done for the period of nineteen years of which we have record."

In an editorial, The Journal of the American Dental Association pledged the cooperation of the Association in the new year-around program of health supervision

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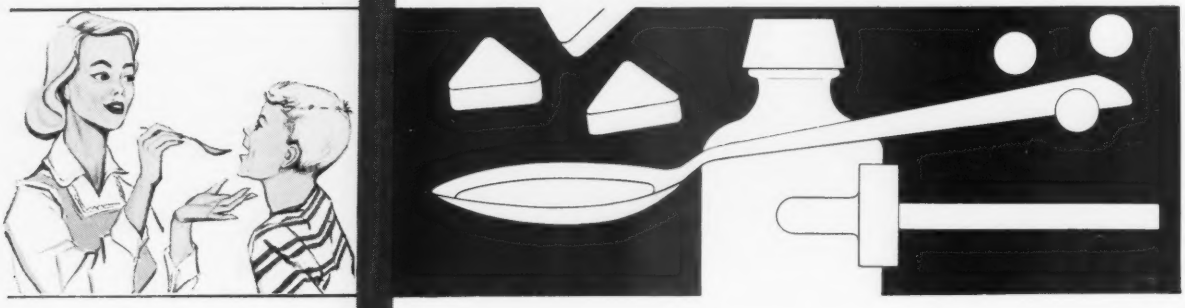

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of the parent-teacher group. In the new program, the traditional pre-school "summer roundup program" will be supplanted by one of "continuous health supervision of all children at the local level."

AHP Board Votes 2 for 1 Stock Split

American Home Products Corporation directors at their regular monthly meeting Aug. 29 voted to split the present shares two for one and to grant stock options to key employees, according to Chairman Alvin G. Brush. At a special meeting on Oct. 23 stockholders will vote on proposals to increase the authorized capital stock from 5,000,000 to 10,000,000 shares of the par value of $1 each and to adopt as tock option plan.

"If stockholders approve the proposed increase in authorized shares," said Mr. Brush, "additional shares of capital stock at the rate of one share for each share held will be distributed to stockholders on or about December 2, 1957.

"It is expected that under the stock option plan over a thousand employees of the corporation and its subsidiaries will be given an opportunity to acquire a proprietary interest in the corporation's earnings and growth."

It is intended that a maximum of 180,000 shares of capital stock, after giving effect to the proposed split-up, are to be set aside for issuance over a period of years.

In 1946, American Home Products Corporation increased its authorized capital stock from 1,500,000 to 5,000,000 shares, $1 par value, and on Nov. 1, 1946 split the stock three for one.

Cosmetic Chemistry Course at Columbia

Columbia University College of Pharmacy will offer a course in Cosmetic Chemistry beginning this month. The need for such a course was indicated by a recent survey conducted by the New York Chapter of the Society of Cosmetic Chemists.

It is designed to provide those interested in, or already employed by the cosmetic and pharmaceutical industries, with the fundamentals of cosmetic technology. Consisting of lecture and laboratory sessions, the course will meet one evening each week for two semesters. The curriculum will cover the theoretical basis and practical applications of cosmetic technology.

Discussions will be concerned with such areas as skin structure and function, emulsion technology, components of cosmetics and cosmetic formulation.

Enrollment is limited to twenty students. Interested individuals should contact Professor Leonard Chavkin at the College at 115 West 68 Street, New York 23, for additional information.

Pfizer Buys Morton-Withers

The Morton-Withers Chemical Company, Greensboro, N.C., has been bought by Chas. Pfizer & Co., Inc. Morton-Withers, which produces chemical specialties for the petroleum, rubber and plastics industries, will be operated as a subsidiary of Pfizer with no changes planned in management or personnel. Joseph R. Morton will continue as president and John P. Withers as vice president.

At a dinner August 8 at the Greensboro Country Club, John E. McKeen, president of Pfizer, told a group of local business and civic leaders that the acquisition of Morton-Withers marks "Pfizer's entry into the expanding petrochemical field and is in line with the company's program of diversification." Already under study, he stated, are "several new products which can be adapted to Morton-Withers' manufacturing facilities."

"While Pfizer products have been sold throughout the southern states for more than a century," Mr. McKeen said, "this will be our first manufacturing operation in the South. Thanks to the welcome we have received from everyone, we already feel very much at home in this city and the state of North Carolina. We are particularly enthusiastic about the opportunities which the Morton-Withers facilities will open up for our growing company."

U. S. P. XVI

While the preparatory phase of the U.S. Pharmacopoeia revision program is completed, no public announcement of the list of admitted USP articles will be made before the end of 1957, according to Dr. Lloyd C. Miller, director of revision. Dr. Miller says that the selection of drugs for inclusion in USP XVI is in progress and the committee on scope has compiled the major portion of the list. However, the announcement is being delayed because a considerable number of important drugs and dosage forms are still under study.

Work on revision of monographs and general tests, as well as drafting of new text, is under way with the ten USP subcommittees undertaking both broad and specific assignments. Within a short time, a call will be issued for volunteers to read proof. Meanwhile, constructive suggestions for changes in the present USP general tests chapters are invited. Those which are received promptly at the USP headquarters office can be considered by the committee of revision prior to the printing of the galley proof.

While previously, USP revision has begun with the monographs section, the committee of revision and its advisers are now reviewing the general tests section with the objective of having the revised text appear in the first batch of galley proofs due this Fall. Although the general tests section of the Pharmacopoeia was revised for USP XV, the currently official revision, the proofs had had to be considered along with those of the monographs section before being distributed in 1954.

By starting with proofs of the general tests section, Dr. Miller believes that the committee of revision will receive more suggestion at the galley proof stage so that fewer changes will be required later in the page proofs. At the same time, advance distribution of galley proofs on general tests will leave more time for reviewing monograph galley proofs, which will begin to appear in the first quarter of 1958.

Fair Trade and Small Business

Commenting that every bill introduced to help small business is being left to die in the 85th Congress, Dr. John W. Dargavel, chairman of the Bureau of Education on Fair Trade and executive secretary of the National Association of Retail Druggists, urges in the

current issue of the bureau's *Fair Trade Newsletter*, that members of Congress be held "to the promises they voiced in support of independent enterprise in the campaigns of 1956."

Dr. Dargavel says the small businessman "is very much the little man who is there," with the four million small business concerns adding up to 95 per cent of all businesses operating in the U. S. today. Yet if the growing crisis is not checked, he adds, "America's small businessman will become the little man who isn't there."

Reasons cited for the growing threat of failure facing small business include the constantly rising costs of labor and materials, the heavy tax burden, the tight money situation making it difficult for the little man to get bank loans, and the growing trend toward mergers of little companies with big ones. "And of vital importance, there is the squeeze of cut-throat competition—such as price wars on the popular brands which constitute the independent retailer's bread and butter," Dr. Dargavel states.

"To prevent this destructive competition from creating chaos in the marketplace, rules of fair competition are needed," the Bureau chairman says. "In the interest of the good society, the freedom of the individual to do as he pleases in the marketplace—as in any other area of life—must be limited by the common sense restraints which society itself imposes.

"The fair trade laws are rules of fair competition and fair play over the counter. Enacted by 45 state legislatures, these laws have been supported by Congress and upheld by the U. S. Supreme Court and sixteen high state courts. But today, in eleven states, courts have knocked out fair trade and new legislation is needed to give small business an opportunity to compete on fair terms with big business. As the Senate Small Business Committee says: " 'Independent businessmen simply are not equipped to survive the low blows of unfair competition.' "

William Haynes Receives Award

William Haynes received the Dexter Chemical Corp. Award in the History of Chemistry Sept. 11 at the national meeting of the American Chemical Society. Industrial chemistry historian and former owner and publisher of Chemical Industries and other publications, Mr. Haynes received the award for his "noteworthy contributions to the advancement of the history of chemistry."

Urge Broader Concept of Mental Disease

Four American physicians, Mortimer D. Sackler, Felix Marti-Ibanez, Raymond R. Sackler, and Arthur M. Sackler, addressing the Second International Congress for Psychiatry in Zurich, Switzerland cited evidence that the blood chemistry of schizophrenic patients differs from that of normal persons, and suggested that the multiple biological factors responsible for this chemical change become primary targets for research conducted along physiodynamic lines. This approach stresses the physiological changes involved in mental disease, and the changing or unfixed nature of psychiatric disorders.

Dr. Mortimer D. Sackler, spokesman for the group, stated that mental disease is "a developmental process" and long duration of the disorder may result in "permanent alteration of anatomy and physiology."

He warned against the pitfalls of research which emphasizes clinical trials with new drugs at the expense of more basic and complex studies of the mechanism of the drugs' actions.

He referred to a variety of substances capable of producing profound mental effects as having created a new armory of weapons for use in investigating the biologic mechanism which underlies mental disease. The physiodynamic approach to mental disease is based upon the recognition that sources of behavioral disturbance are multiple and may derive from external as well as internal forces. This over-all concept has already proven its practical value. "In our work," the doctors explained, "it . . . has conferred the property of predictability to an area of psychiatry and permitted us to predict that ACTH and cortisone upon administration could produce psychosis. It led some years ago to the development of a blood test which was 80 per cent accurate in the identification of schizophrenic patients. It permitted us on physiologic grounds to deny that the psychoneuroses and the psychoses were lesser and greater degrees of the same disease process and, in fact, to affirm that they represented opposite and even mutually exclusive directions of physiological disturbance." Other examples were given.

The New York researchers concluded by stressing that the currently available pharmacodynamic agents should not be only used to bring relief to the mentally sick but also "to uncover the physiodynamic mechanisms of their actions and the nature of the disease processes themselves." "Only then," they said, "will the metabolic era . . . mature and bring to fruition man's long hoped for salvation from the ravages of mental disease."

Lehn & Fink to Buy National Labs.

Lehn & Fink Products Corporation will purchase National Laboratories, Inc., of Toledo, manufacturer of chemical products for industrial sanitation, Dr. Edward Plaut, president of Lehn & Fink, and Lisle C. Van Nest, president of National Laboratories, have announced.

The purchase will be an all cash transaction. Mr. Van Nest will continue as chief executive officer of the acquired company. There are no contemplated changes in present management.

"The addition of National Laboratories to our company should add at least 50c per common share a year to our earnings," Dr. Plaut said. "Although this acquisition is a diversification move, products of National Laboratories will also complement our company's present line of professional disinfectant products, which include Lysol, Amphyl, O-Syl and Instrument Germicide.

"Bringing National Laboratories into our company is a continuation of our present acquisition program. Ogilvie Sisters, manufacturers of hair preparations, which we acquired late last year, was the first step in this program. Future acquisitions are under consideration."

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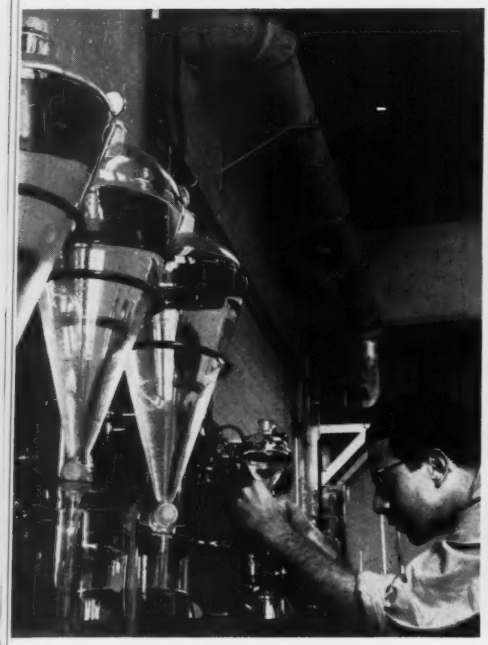

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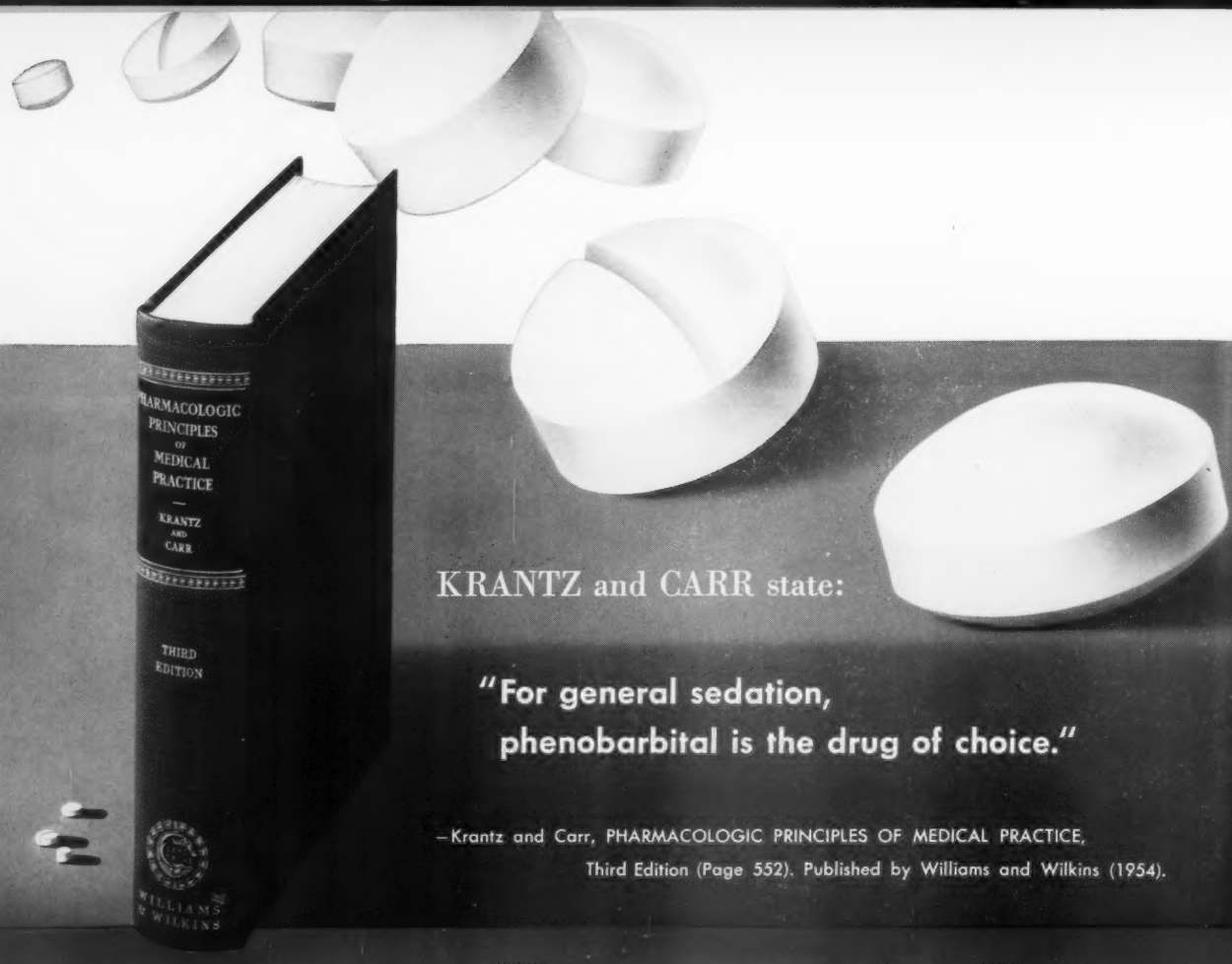

KRANTZ and CARR state:

"For general sedation, phenobarbital is the drug of choice."

–Krantz and Carr, PHARMACOLOGIC PRINCIPLES OF MEDICAL PRACTICE, Third Edition (Page 552). Published by Williams and Wilkins (1954).

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SUNBURN and its Control* PART ONE

BY EMIL G. KLARMANN,
SC.D., D.SC. (HON.) VICE-PRESIDENT AND MANAGER OF TECHNICAL SERVICES, LEHN & FINK, INC., NEW YORK, N. Y.

Some Physical and Physiological Aspects of Solar Radiation

The light of the sun is but one of the many kinds of radiant energy with which we are familiar today. It is of electro-magnetic character, and differs from other forms of electromagnetic radiant energy in regard to its spectrum, as described in terms of wavelengths or frequencies of its component radiations. The wavelengths are measured usually in millimicrons or in Angstrom units; their relation to one another as well as to other units of length is established by the following equation:

10,000 Angstrom = 1000 millimicron = 1 micron = **0.001 millimeter = 0.0001 centimeter.**

The comparison, in terms of wavelengths of the sun's radiation with certain other forms of radiant energy, is given in the following table 1[1].

Table 1
APPROXIMATE WAVELENGTHS OF VARIOUS RADIATIONS

	Wavelength Range (Angstrom Uuits)
Gamma rays from radioactive substances	0-0.1
Roentgen or X-rays	0.01-500
Ultraviolet energy	0-3,900
Extreme or short-wave	0-2,000
Schumann region	1,000-2,000
Middle	2,000-3,000
Limit of solar spectrum	2,900-2,950
Near or long-wave	3,000-3,900
Visible energy	3,900-7,700
Violet	3,900-4,300
Blue	4,300-4,900
Green	4,900-5,500
Yellow	5,500-5,900
Orange	5,900-6,200
Red	6,200-7,700
Infrared energy	7,700-10 X 10^4
Near or short-wave	7,700-14,000
Long-wave	14,000-10 X 10^4

As to the ultraviolet range which is of primary interest in this presentation, the wavelengths shorter than those around 2000 Angstrom are of little biological or therapeutic importance because such radiant energy is absorbed by most materials, including air. The range between 2000 and 3000 Angstrom, however, is capable of producing certain biological effects, (e.g., activation of ergosterol to Vitamin D), although it is of no relevance with respect to solar radiation which barely touches upon this range, its short wave limit being around 2900 Angstrom[2].

The ultraviolet radiation of the sun within the range of 2900 to 3200 Angstrom is biologically active, though the maxima of this activity with respect to certain individual effects may lie outside of this band. Thus the solar ultraviolet energy shows germicidal action, although the maximum efficacy is exhibited by the wavelength of around 2600 Angstrom which does not reach the earth. Other biological effects of this range are production of erythema and antirachitic action; with regard to the latter, it is noteworthy that, as shown by Gerstenberger[3] and coworkers, the prevention and cure of rachitis may be accomplished by dosages of ultraviolet energy which are so small as to be insufficient to produce a minimum perceptible erythema on untanned skin. One may infer from these findings that reducing the intensity of the solar ultraviolet by means of a sunburn preventive is not likely to interfere with antirachitic action.

Under the optimal conditions for sunburn, only 0.2 per cent of the total solar radiation is erythemogenic; the intensity of the latter depends, first of all, upon the sun's altitude, i.e., its variation with the seasons and with the daylight hours. The most intense erythemal radiation occurs in Summer between the hours of 11 A. M. and 2 P. M.

*Presented at the Cosmetic Chemistry Seminar, St. John's University College of Pharmacy, Brooklyn, N. Y., April 16th, 1957.

A factor of considerable importance is the relationship between direct and scattered radiation. Scattering of light is caused by molecules of the atmosphere. The extent to which it occurs depends upon the wavelength; thus in the case of visible radiation, the shorter wave blue is scattered more than the longer wave yellow or red. In the case of the ultraviolet component, in the range of 3200 Angstrom or less, the intensities of the direct and the scattered radiations are about equal. On an overcast day, the scattered, i.e., the indirect radiation may be even more intense than the direct one; this explains the frequent occurrence of sunburn on overcast days when least expected by the unwary sun bather.

In late Spring and in Summer the intensity of the direct, erythemal radiation from the sun exceeds that of the scattered radiation (from the sky) only during two hours in the middle of the day; outside of these hours, the scattered sky light shows greater erythemal effectiveness than the sun's direct radiation. In September, the sky contributes more erythemal radiation than the sun during the whole day.

Another factor relevant to the effect upon the skin is the reflection of light of different wavelengths. Considerably more energy is reflected by the untanned skin in the visible range than in the ultraviolet region[4], as shown in Table 2. With specific reference to

Table 2
REFLECTION BY NORMAL SKIN OF WHITE PERSONS

Wavelength	Per cent	Wavelength	Per cent
2400	3	4000	28
2600	4	4500	35
2800	4	5000	42
3000	5	5500	48
3200	11	6000	54
3400	16	6500	65
3600	21	7000	68

erythemal radiation (viz., in the range of 2800 to 3200 Angstrom) only 4 to 11 per cent of incident energy is reflected, i.e., 90 per cent or more is absorbed. In this connection it may be mentioned that while the skin of a Negro reflects less visible light energy, the difference is much less marked in regard to the invisible erythemal energy.

Erythema and Sunburn

That solar erythema is caused by the sun's ultraviolet light appears to have been recognized first by Foucault and Deprez sometime prior to 1858, as related by Charcot[5].In 1889 Widmark[6] produced the first proof of the erythemogenic action of ultraviolet radiation by demonstrating that this radiation when passed through quartz was active, while when passed through glass it was inactive in eliciting an erythemic response.

The several skin layers are penetrated by radiation of different wave lengths which produce different effects. The schematic drawing[7] of a cross-section of the skin (Fig. 1) is intended to aid in the consideration of the following statement:

Radiant energy of 2000 to 2500 Angstrom penetrates only the horny layer, and that of 2500 to 2800 Angstrom penetrates the granular cell layer, as well. However, radiation of 2800 to 3200 Angstrom penetrates also the network of blood vessels (*rete vasculosum*) reaching into the papillary layer; the latter two ranges are both erythemogenic and pigmentogenic in action. The longer waves of 3200 to 3900 Angstrom which also reach into the derma, are pigmentogenic but produce only little erythema, while those of 3900 to 14,000 Angstrom have a heating action which causes hyperemia in the subcutaneous tissue; this is entirely different from the erythema which is of a congestive character. Thus, solar erythema originates mostly in the derma, and especially in the papillary layer, as a result of dilatation of blood vessels in this area. Pigment formation occurs mostly in the cylindrical cell layer.

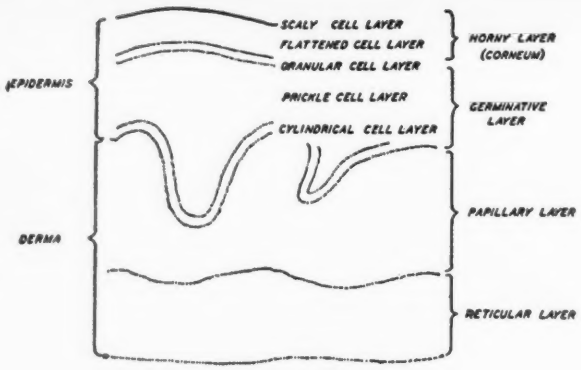


Fig. 1 Diagram of Skin Section

Table 3
CORRELATION OF WAVELENGTHS OF ULTRAVIOLET RADIATIONS WITH THEIR ERYTHMAL EFFECTIVENESS

Wavelength	Erythemal Effectiveness	Wavelength	Erythemal Effectiveness
2399	95	2804	6
2482	90	2894	25
2537	80	2925	70
2576	70	2967	100
2654	30	3024	50
2675	20	3132	2
2700	15	3342	0.4
2760	5	3663	0.12

Table 3 correlates the wavelengths of ultraviolet radiation with their relative erythemal effectiveness for the untanned skin[2]. Beginning with the wavelength of 2399 Angstrom which shows the effectiveness of 95, there is first a steady decrease until the wavelength of 2804 Angstrom is reached, followed by an increase to a maximum at 2967 Angstrom. At 3024 Angstrom the erythemal effectiveness is one-half that at 2967; still longer waves show a steep decrease. For the purpose of this presentation one may disregard the effects of ultraviolet radiation of wavelength below 2894 Angstrom; the latter, incidentally, shows one-fourth the activity of the maximal erythemal energy at 2967 Angstrom.

As to the production of erythema, it is a matter of common experience that it does not appear for some time following exposure to the sun of the untanned skin. For descriptive purposes one may distinguish

DEVANEY PHOTO

several degrees of skin response resulting from varying exposures, which are in a rather definite ratio as shown by the following list:

Degree 1 Minimum perceptible erythema	1.0
Degree 2 Vivid erythema	2.5
Degree 3 Painful burn	5.0
Degree 4 Blistering burn	10.0

Thus it appears that to produce, e.g., a painful burn, one must give five times the exposure required for the minimum perceptible erythema.

Histologically, the sunburn injury is localized largely in the prickle cell layer, as mentioned before. In becoming injured, these cells protect the germinative cells below. The elaboration of degradation products accompanying the injury to the prickle cells is assumed to cause a relaxation of the blood vessels of the derma which leads to erythema after a latent period. A more extensive damage to the prickle cells is followed by infiltration with lymph, and the formation of blisters.

Tanning follows upon erythema which stimulates its development. The pigment melanin is formed first in the basal layer where, of course, it cannot immediately protect the prickle cells which are located above it; only later, as the melanin granules migrate outward[8], does the pigmentation exert some protective action against erythemal radiation.

A basic scheme of the several events involved in sunburn and its sequelae has been suggested by Blum[9]. It distinguishes between the effects caused by radiation of wavelengths shorter than 3200 Angstrom, and those of 3000 to 4200 Angstrom. The former are erythemal, the latter are directly melanogenic. The injury to the epidermal cells by the shorter wave radiation is assumed to cause first an alteration of the photolabile unconjugated proteins or nucleic acids, or both; this leads to the elaboration of the following five individual factors with specific functions: (a) a dilator substance which produces erythema; (b) "leucotaxine," which causes edema and also attracts leucocytes from the blood capillaries to the injured area; (c) other inflammation products which bring about cellular degeneration in the epidermis, followed by proliferation; (d) the melanotactic factor, as well as (e) melanin itself, which ultimately leads to suntan. By contrast, the longer wave radiation causes a darkening of preformed propigment; incidentally, here the presence of oxygen is required to produce tanning.

As to the several substances referred to above, the nature of the dilator substance has been the subject of considerable speculation. It has been assumed to

(*Continued on page 370*)

Pharmaceutical Aerosol Symposium

Almost 150 representatives of the pharmaceutical and aerosol industries attended a very successful "Aerosol Symposium for the Pharmaceutical Industry" held at the Philadelphia College of Pharmacy and Science in Philadelphia on August 20, 1957. The symposium, sponsored by the College, was organized by a program committee consisting of Martin Barr of the Philadelphia College, Lawrence Hall of E. I. DuPont de Nemours & Co., Inc., Robert A. Foresman, Jr., Consultant, David S. Tillotson of Pennsalt Chemicals Corp. and Harvey Tull of Crown Cork and Seal Co. under the chairmanship of Dr. Barr.

The group was welcomed by Dr. Ivor Griffith, President of the College and the moderator was Dr. Linwood F. Tice, Associate Dean and Director of the Department of Pharmacy.

The program was organized with the purpose of providing an over-all picture of the requirements for an aerosol package—systems, containers and valves and an idea of the size of the present aerosol production and sales—to pharmaceutical people, considerations involved in entering the aerosol field and a discussion of possible applications of aerosols to pharmaceutical products.

More than 150 attended the Aerosol Symposium held Aug. 20 at the Philadelphia College of Pharmacy and Science.

Pharmaceutical Aerosols

The pharmaceutical paper was presented by Martin Barr of the Philadelphia College of Pharmacy and Science.

Among the advantages of aerosols for use as medicinal dosage forms is their ease of application and that the dosage may be controlled by the use of metered valves. Topical medicinal aerosols applied to an injury produce a minimum of irritation to the treated area. Aerosols also can be designed to dry very rapidly when administered topically.

Since an aerosol dosage form is gas-tight, there is no access of air to the product. This prevents contamination, evaporation during periods of non-use, and preserves the potency of the active ingredients through the elimination of oxidation, etc.

Many drugs may be administered as aerosols for inhalation therapy. The advantages of this type of therapy are the possibility of obtaining a high concentration of drug over a limited area, almost instantaneous response to the medication and less danger of inactivation of the medicament since it does not pass through the gastro-intestinal tract.

There are close to one hundred aerosol dosage forms on the market today. These include such products as topical anesthetics, burn remedies, athlete's foot preparations, and other products intended for foot use, poison ivy lotions, spray bandages, skin balms, adhesive tape removers, throat sprays, nasal sprays, topical antiseptics, and aerosols intended for inhalation therapy. There is much waste and messiness produced in the handling of most externally used products by both physician and patient. The time consumed, the non-uniformity of application and the irritation caused by the manual application of the medication are other well-known disadvantages. The use of these types of products in the form of aerosols would eliminate most of these objectionable features.

Much interest has been shown in the preparation of foot products as aerosols. There are presently on the market pharmaceutical aerosols intended for use on the feet as antiseptics, deodorants, drying powders, cooling preparations, astringents and fungicides.

Several pharmaceutical aerosols intended for use as antiseptic applications have appeared on the market in the last few years, some containing antibiotics. These have appeared as both liquid and powder aerosols.

Other examples of dermatological classes of preparations which warrant study as aerosols are: steroid-containing topical products, vitamin-containing products, antihistamine preparations, calamine and/or zinc oxide-containing preparations, sulfur and/or resorcinol products, tar-containing products, fungi-

cides, scabicides, burn preparations, anti-pruritics, protectives, cleansers, emollients, and lubricants.

The use of the spray bandage aerosol is of interest. It should prove interesting to investigate the possibility of impregnating the spray bandage with various classes of dermatological medicaments, such agents being therapeutically active when sprayed on the skin.

One area where it appears that aerosol pharmaceuticals may have great application is in ear, nose, and throat therapy. A few such aerosols, especially for use in the nose and throat, have already been developed. Toxicity and tissue irritation studies must necessarily be carried out in order to establish definitely the safety of the propellants used in these types of preparations.

Seated, left to right: W. Earl Graham, Thomas D. Johnson Jr., Walter E. Beard Jr., and Robert A. Foresman Jr. Standing, left to right: Dr. Martin Barr, Dr. Ivor Griffith, Dr. Linwood F. Tice, and David S. Tillotson.

It seems logical that medicaments may be able to penetrate the nasal tract more effectively and especially the sinuses if administered in the form of an aerosol.

It is difficult to obtain effective concentrations of medicinal substances on the mucous membrane linings of the throat. In throat therapy with troches and gargles, there is not sufficient contact between the drug and the throat when these dosage forms are employed. Aerosols appear to have a definite role in the formulation of anti-bacterial, anesthetic, and astringent preparations intended for throat therapy.

Very little has been done in the development of aerosols for use in the ear. There should be a better drug penetration of the middle ear region if medication is applied in the form of an aerosol.

Some limited work has been done in the development of pressurized dosage forms for dental use and products such as local anesthetics, anodynes, emollients, astringents, and anti-bacterials may be conveniently and effectively administered as aerosols. Interest is being shown at present in dental aerosols intended for use in oral prophylaxis.

The development of pharmaceutical aerosols for possible use in the treatment of local rectal and vaginal conditions has not been significantly explored as yet.

Effective use might be made of aerosol dosage forms in applying anti-infectives, deodorants, and perhaps contraceptives to the vaginal tract.

In the case of rectal therapy, use may be made of aerosols as a dosage form for the application of local anesthetics, anti-pruritics, anti-infectives, and astringent medication.

Another possible application of rectal or vaginal aerosols is for the administration of drugs intended to be absorbed systemically.

The effectiveness of a medicament in aerosol form is dependent to a high degree upon particle size. For example, the particle size of aerosols intended for application to the lungs must be small enough to be carried by the air stream through the nasal cavities, pharynx, larynx, and trachea, and yet large enough so that they will be deposited on the lung tissue.

It has also been shown that significant systemic action may be demonstrated when certain medicinal agents are administered as aerosols. Among these may be included various vasoconstrictors, vasodilators, cardiotonics, diuretics, convulsants, central nervous stimulants and depressants, hormones, and antibiotics. In these cases, the medicaments are not localized on the pulmonary tissues but are actually absorbed into the blood.

Some consideration has also been given to the administration of serums, antitoxins, antigens, pollen extracts, histamine, antihistamines, vaccines, and antitubercular drugs in the form of aerosol inhalants.

Entering the Aerosol Field

Robert A. Foresman, Jr., aerosol consultant of Philadelphia, presented detailed considerations in the development and production of aerosols.

There are actually five possible approaches to the development of an aerosol product, namely:

1. Grants to Educational Institutions if they have required facilities and know-how.
2. Use of suppliers services.
3. Cooperative use of contract fillers facilities, personnel and know-how.
4. Use of consultants specialized in the field.
5. Establishment of your own laboratory and the training or acquiring of personnel to use it.

Preliminary use of customer service experimental packaging of aerosols is an approach which can be helpful but which, by its nature, must be somewhat limited. Recently, suppliers of other classes of ingredients such as flavor materials, emulsifiers, waxes, lanolins, etc., have entered the field of customer service in aerosols.

Many contract loaders of aerosols have excellent laboratory facilities and know-how. Frequently a very

(*Continued on page 378*)

SCC European Tour

BY AUDREY LANGDON

In Paris there were red roses for the women. In Geneva there were handsome blue folders of programs and guidebooks for everyone and in London there were heavy envelopes of informative material, courtesy of *Perfumery and Essential Oil Record*. We were the 51 United States delegates of the Society of Cosmetic Chemists and we had seventeen days to exchange scientific and technical information with representatives of the cosmetics industry abroad.

It was a gray and dismal Sunday morning when we arrived in Paris. After a night on the plane we felt somewhat frayed but eager to carry out a few personal projects, such as visiting museums or taking photos. Two reception committees were on hand to welcome us. First, the top executives of our travel agency in Europe (known as Hotel Plan there, World Travel Plan in the U. S.). Under the skillful guidance of their staff our group moved effortlessly through customs and into the second welcoming committee, headed by M. Louis Schmuck, the organizer and guiding spirit of the Societe Francaise de Cosmetologie.

An even larger reception committee awaited us at the hotel. There were many Societe Francaise members and some early bird members of our party, like Mr. and Mrs. Jerry Amsterdam of van Ameringen-Haebler who had been touring Italy. There were officers of French companies, waiting to extend invitations to important Americans like Ted Coneybear of Colgate-Palmolive. There was the effervescent editor of *Perfumery and Essential Oil Record*, Mr. Littlejohn, ready to spread his large scale good fellowship among his American readers. While they were all prepared for our arrival, the hotel was not. The promised short wait for our rooms stretched out over the morning, enlivened by Dot Strianse, wife of the SCC President, discovering that her five pieces of baggage were missing.

Ted and Marion Coneybear rescued me from complete frustration with a suggestion we visit Notre

Kurt Pfeiffer, President of the Swiss Society of Cosmetic Chemists, welcomes Dr. and Mrs. D. H. Powers to Geneva, second stop on the SCC tour.

Left: At the Givaudan villa near Geneva, Mme. Salvador Sanz de Alcedo of the Givaudan family, center, meets members of the SCC delegation. On the left, are Mrs. Stillman R. Goff and Mrs. S. F. Coneybear; on the right Dr. Sophie Plechner and Mrs. Henry R. Kreider. Above: International cooperation among cosmetic societies is discussed at the Congress on Cosmetic Science in Paris. President S. J. Strianse of the U. S. Society of Cosmetic Chemists is third from the right, Publications Chairman M. G. de Navarre second from the right. Representatives from the British Society, left, are W. R. Littlejohn, F. Riley, and J. Pickthall.

Dame. We arrived too late for services, but stayed long enough to enjoy the cathedral's spectacular beauty and long enough for the hotel to locate missing baggage for the Strianses and a room for me. Bob Kramer (guiding spirit of the tour, Secretary of the Society, and v. p. of Evans Chemetics) had chartered a bus for Versailles and Fontainebleu. His idea pleased everyone. There we had our first glimpses of French grandmothers, schoolchildren, and lovers, and also of sunshine, appearing dramatically as we stepped into the gardens of Versailles. I decided it was worth losing a night's sleep for such a trip.

By one means and another still one more night's sleep eluded most of us and we had a thinning group of delegates to tour the new Coty plant near Paris. It is almost a Hollywood version of a factery—pastel tinted, delightfully fragrant, scrupulously clean. Even the women assembling Christmas sets were good looking. Men like Don Powers of Lambert-Hudnut were fascinated with the modern machinery and processes and equally interested in the amount of slow, careful hand work.

That afternoon there was an enlarged party to attend the receptions at Pasteur Institute, Guerlain, and the Jean d'Athene Institute of Beauty. While some of us had admired the Coty plant, the officers of the Cosmetic Societies of the U. S., Great Britain, France, and several other countries had been engaged in a high level meeting about international technical cooperation. The accord they had sought after was nurtured by the champagne served at Guerlain and Jean d'Athene. The champagne was far superior to any exported to America and it helped us weary travellers to keep pace with our French colleagues—who seem to consider a schedule as a rough starting guide, an inspirational device.

Even without champagne and delicious hot canapes the Guerlain Institute of Beauty would be fabulous.

(*Continued on page 386*)

E. P. Morrish, co-chairman of the Cosmetic Seminar in Geneva, addresses the audience of Swiss and American Cosmetic Chemists. The two-day technical meeting was held in the Physical Institute of the University of Geneva.

At a reception by the Governor of Valais, American SCC delegates sample Swiss sunshine and wine. They are Mr. and Mrs. M. L. Rosenthal of Robeco Chemicals, Abraham Minton of Gar-Baker Laboratories, and Dr. Henry L. Kreider of Chesebrough-Pond's.

Dr. Robert A. Marriott of England's County Laboratories, right receives congratulations on the success of the International Symposium on Hair, supported by his company. Expressing the admiration of the American delegation are SCC President S. J. Strianse and Secretary R. A. Kramer, at a reception in London.

At a joint meeting in London, officers of the Society of Cosmetic Chemists of the United States and Great Britain exchange progress reports. In the front row (l. to r.) are SSC Journal editor, Marian C. Aarons, President S. J. Strianse (U.S.), President Jack Pickthall (Great Britain), Secretary R. A. Kramer (U.S.), Secretary F. Riley (Great Britain); in the second row, S. F. Coneybear (U.S.), R. T. Dobson (G.B.), M. G. de Navarre (U.S.), Middleton and Littlejohn (G.B.).

Dr. Chase B. Jones of the Gillette Co., far left, and Steve Goff of Toni, right center, meet members of the British SCC at a reception in London. On the right is F. Riley of Marchon Products, secretary of the British Society of Cosmetic Chemists.

Dimethyl Hydantoin Derivatives

BY SAMUEL COHEN, GLYCO PRODUCTS CO., INC, NEW YORK

COURTESY LANOLIN PLUS COSMETICS

A new class of compounds possessing unique properties has recently become available on a large commercial scale in the United States. These products, derivatives of dimethyl hydantoin are beginning to find applications in a number of industries and have become sufficiently important so that production estimates of the Glyco Products Co. call for the manufacture this year of approximately one million pounds of dimethyl hydantoin. To its credit, the cosmetic industry has always been interested in evaluating and finding applications for new chemicals. Now the industry has begun to focus upon the properties of the dimethyl hydantoin derivatives and has found several interesting possibilities so far.

Two formaldehyde derivatives, monomethylol dimethyl hydantoin and dimethyl hydantoin formaldehyde resin, are already being used commercially in cosmetics. Monomethylol dimethyl hydantoin, a white crystalline material, completely free from odor, containing approximately 19 per cent of combined formaldehyde, shows great promise as a new source of formaldehyde which will release formaldehyde slowly over a prolonged period of time making it useful as a preservative. Dimethyl hydantoin formaldehyde resin, an alcohol and water soluble polymer, has attracted attention because of its film-forming properties which make it useful for the formulation of aerosol hair sprays and finger-wave lotions.

Before going ahead with the possible cosmetic applications of these dimethyl hydantoin derivatives, let us outline briefly the history and basic chemistry of the hydantoins.

Hydantoin was discovered in 1861 by Baeyer who isolated it as one of the reduction products of allantoin, during the course of his classic study of uric acid. Hydantoin may be considered as a derivative of glycine and can be prepared by condensing glycine with potassium cyanate giving hydantoic acid after eliminating water from the latter by boiling with hydrochloric acid. Hydantoins occur naturally and have been found in molasses, in buds of the oriental plane tree, and in white shoots of sugar beets. In view of the close relationship between hydantoins and alpha amino acids, it has been suggested that hydantoic acids and hydantoins might be present in proteins. Allantoin, a uric acid derivative is 6-ureido hydantoin. The literature contains a number of references to the use of allantoin for removal of necrotic tissue and to induce new healthy tissue growth. Because of this property, allantoin has been recommended for incorporation in various cosmetic preparations.

A number of 5, 5-disubstituted hydantoins have found use in medicine. The first one, Nirvanol (5 ethyl, 5 phenyl, hydantoin) was used as a hypnotic. The hydantoin derivative which has been more widely used in medicine 5, 5-diphenyl hydantoin (Dilantin) is usually employed in the form of the sodium derivative, which is an effective anticonvulsant.

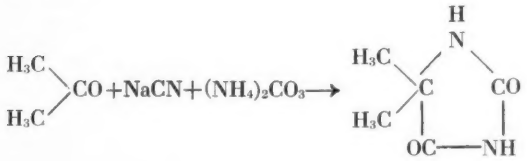
5,5-Dimethyl hydantoin was first made on a commercial scale in the U.S.A. by the Dupont Company who discontinued its manufacture in 1956 and licensed its manufacture and sale to Glyco Products Company, Inc. Its primary use is as an intermediate for the preparation of dichloro dimethyl hydantoin which is the active ingredient in new dry bleaches and sanitizers. Dimethyl hydantoin is also used to produce dibromo dimethyl hydantoin, a selective brominating

Delivered at recent meeting of the International Society of Cosmetic Chemists.

COURTESY GERMAINE MONTEIL

agent, and monomethylol dimethyl hydantoin and dimethyl hydantoin formaldehyde resin.

Dimethyl hydantoin is synthesized commercially by the reaction of acetone, sodium cyanide and ammonium carbonate.



It may also be prepared by the reaction of acetone cyanohydrin and ammonium bicarbonate or ammonium carbonate; the reaction of acetone, hydrogen cyanide and ammonium carbonate in aqueous solutions; the reaction of acetone, potassium cyanate and ammonium carbonate in aqueous solutions; the reaction of alpha-aminoisobutyronitrile, potassium cyanate and acid hydrolysis of the resulting alpha-ureidonitrile to hydantoins. Dimethyl hydantoin is an odorless white crystalline salt, soluble in water and alcohol, having a melting point of 178° and pH (10 per cent aqueous solution) of approximately 5. It reacts with chlorine to give either the mono or dichlor derivatives.

Dimethyl hydantoin reacts with certain cyclic compounds such as benzene and furan to form crystalline complexes which may be converted to the original constituents by the addition of water.

The reaction of dimethyl hydantoin with formaldehyde can be controlled to make either monomethylol dimethyl hydantoin or methylene-bis dimethyl hydantoin, or a series of resins including dimethyl hydantoin formaldehyde resin.

Monomethylol dimethyl hydantoin is a white crystalline solid melting at 110°C and is readily soluble in water and in ethanol. It contains 19 per cent combined formaldehyde capable of liberation and is used as an odorless donor of formaldehyde.

Formaldehyde is released slowly from slightly acid aqueous solutions or by heating solutions of monomethylol dimethyl hydantoin or in the presence of formaldehyde acceptors, such as amines. On heating in the dry state, monomethylol dimethyl hydantoin is converted to a water soluble transparent resin.

Dimethyl hydantoin formaldehyde resin is a water-white resin having a softening range of 59-80°C. The Refined Grade contains less than 100 parts per million of free formaldehyde and is soluble in both alcohol and water. By spraying or spreading such solu-

(*Continued on page 388*)

Consumer Evaluations of New Products*

BY M. L. RITTENHOUSE
BRISTOL-MYERS CO.

Pre-testing new products among consumers is an indispensable modern tool of marketing research. It is a guide to management in the development of new products or in improving products already on the market. It serves as a means of communication between the manufacturer and the users, or potential users, giving management a basis for making decisions.

From the managerial point-of-view the importance of a product test is in the interpretation of the findings. This does not preclude managements interest in the marketing research techniques used to carry out the consumer research. It does mean, however, that management gives the marketing research director authority to analyze the problem, design the study, and obtain the data in a professional manner.

Product tests can be defined in terms of their objectives which can be stated as follows: to act as a guide in the development of the product; to determine the consumer acceptability of the new product by comparing it with the company's established product or a competitive product; to obtain the general reaction to the product idea. Each of these objectives will be discussed separately in the following paragraphs. By so doing, it is possible to see how new products evolve through product testing.

Once management decides to invest time and money in the development of a product the project should be confidential and all precautions must be taken to carry out the development of the product in secrecy. Accordingly, in testing the product in its early stages, employee panels are used, either the "professional" or office panel.

The professional panel is generally composed of about 10-20 employees who, have exhibited acute senses of taste or smell. They can recognize minor difference of degree between two products and therefore help the laboratory develop a product that approaches the standard. The food companies use professional panels a great deal. For instance, if a company wanted to develop an orange-flavored product, the professional panel by accepting or rejecting samples would be able to help direct the laboratory in finding the one combination of ingredients that most nearly resembled the natural orange flavor. A trained sensory panel can determine with certainty whether printers' ink or cellophane used for packaging will give rise to an off-odor, whether a cardboard container influences a delicate flavor, and whether careless handling in shipping has any untoward effects.

The results of professional tests usually stay within the laboratory and are not presented to management.

The office panel: In this instance a larger group of employees are asked to try the experimental product and give their opinion of it. The problem of bias is ever present among employees, hence this is a questionable method of pre-testing a product, but it

*From a thesis being submitted to the Graduate School of Business, New York University, for the degrees of Doctor of Philisophy.

EWING GALLOWAY PHOTO

served the limited purpose of screening variations of the proposed product quickly and economically. If the group is carefully selected and the products presented properly, they can generally point out the obvious negatives in a proposed product which gives the laboratory a chance to improve the formulation before large-scale testing is undertaken. Occasionally the results of these tests may be presented to management, particularly if no further testing of the product is anticipated. In such cases management is advised to consider the findings only as an indication of a small, biased group.

Controlled tests: Almost every type of consumer product can be subjected to some kind of controlled tests that can be used as a preliminary evaluation of the product. These are conducted either in the laboratories or with specialized testing organizations, and should be done to obtain complete knowledge of the properties and action of a product. For instance with a shampoo the controlled tests would include:

1. Cleansing properties
2. Rinsability—how quickly and efficiently the shampoo rinsed from the hair
3. Effects of the shampoo on the hair
4. Appearance of the hair after using shampoo
5. Effects of the shampoo on the scalp.

Answers to the above characteristics would have to be obtained from all types of hair. Tests would have to continue over a period of time to ascertain the effects of continued use of the shampoo itself; and to learn the mutual effects of the shampoo and other treatments, to which the hair may be subjected; e.g., scalp treatments, permanent waving, bleaching or coloring. Such a program should be well planned in advance so that steps follow in the proper order for the best observations, and so that nothing of importance will be missed in passing. For the success of any such program the investigator must always be sure of knowing what he is *looking for* and what he is *looking at*.

These controlled tests are so closely supervised that results often can be correlated with what is known about the product or the market, thereby giving management the basis for making product decisions. Where pharmaceuticals are concerned, the controlled tests are the principal means of evaluating the product.

Determination of relative acceptability of new product: In general, the "relative acceptability" of a product means that it is compared with one that is already established on the market; either an older product of the company or a competitive product. This type of testing is commonly referred to as a paired comparison test and the measure of acceptability is made on a relative basis. All the requisites of blind product testing are adhered to: both products

Continued on page 393)

Money in the Till

BY MIKE KADISON, VICE PRESIDENT, INTERNATIONAL MANAGEMENT CONSULTANTS

Make no mistake about it, we are in a tight labor market, nationally . . . tight from the standpoint of labor quality, production quantity and mass labor morale. This is a problem not only peculiar to this industry, but shared by a large segment of other industries. The trend has been and is continuing towards more pay for less productive effort per labor hour and this attitude constitutes a very real threat to the basic economics of our current prosperity. Prophet of gloom —perhaps—but all is not completely black. Alert Management can find the answer in semi-automation, flexibility of Management thinking, which in turn creates a productive flexibility . . . . with the emphasis on gadgeteering, particularly in small to medium size companies, in short, making the most effective use of manpower hours.

It is unfortunate that in the drug and cosmetic industry, Management and production thinking are far behind other industries. Executives cry short runs, diverse products, frequent changes—as though these things were their special curse. They cry that they are being stifled in many cases by shortsighted unions, by the calibre of employees, and by the tendency to large labor turnover factors. Believe me these very things exist in every other industry, particularly where continued success depends on versatility of product. Let's examine both sides of the problem, and perhaps come up with some suggestions for solution. First, what does Management want? A quality product as cheaply as possible, particularly from the competitive standpoint.

Now, what is Labor's aim? To earn as much money as possible in terms of effort and production. One of the first solutions to this problem—and perhaps the easiest—is that of the application of an intelligent, fair, well-administered incentive program. This solves three important problems:

1. It rewards Labor in direct proportion for skill and effort.
2. It provides a quality product at the most economical labor figure.
3. It provides Management with two indispensable tools . . .
   accurate costing and scheduling.

One of the main reasons for the reluctance of Labor to participate in a program of this type is that they are not sure that the standards established will be equitable and that there will be constant problems and disputes in the administration of such a program. From the Management side, it is felt that as a result of the installation of an incentive system, the major end result is a poor quality product—and they too are also convinced that they are letting themselves in for endless bickering regarding piecework prices.

Neither of these premises is true. Statistics show that the result of a well thought out, properly installed incentive system is satisfaction for everybody. For Management,—increased production—lower labor costs—accurate costing—accurate scheduling—accurate utilization of labor hours and the establishment of a stable labor force. For Labor,—increased income —increased job stability—better morale and in fact a healthier economy.

The prime requisite for a successful incentive program is common understanding of the ultimate goals and a complete understanding of the techniques of arriving at these goals. We have always recommended that in the initial planning stages, representatives of the labor force sit in on all conferences so that they can understand and explain the purposes, techniques

WORKABLE INCENTIVES

and accomplishments of such a program to their fellow employees. Of particular importance is a careful explanation of the technique of M.T.M. (methods, time, motion) analysis and time study. There is nothing mysterious or complicated about these and it is a good idea to train one or more representatives of the labor force in this technique, at the same time a staff man is trained. All that is required is someone of average intelligence and a good instructor. In most areas, courses are available at little or no cost, from local universities or industrial training committees. As a result of this close initial cooperation, one great hurdle is passed . . . the suspicious attitude of "how were these rates arrived at."

Simplest System

A wage incentive is in principle a method by which an employee can earn more than his base pay in proportion to the amount of performance he delivers above a standard. This is a basic principle, applicable to any type of performance, any industry, any plant, and any activity. Contrary to the impression still held by many executives, it is just as applicable and important in a small jobbing shop as in a large scale automatic production plant. In addition, a wage incentive program can easily be designed to cover indirect, so-called non-productive labor, as well as all types of direct labor employees.

The principle itself does not vary, but its application may vary widely according to local conditions and plant operating techniques.

General steps taken in developing an incentive program are in essence quite simple. They are:

1. Establishment of properly scaled pay rates on the basis of job classification and evaluation. This is not a mysterious, highly technical job—as a matter of fact, the Department of Commerce puts out a well written manual for job classification which almost anyone can understand and apply.
2. Setting of performance standards, carefully evaluated in terms of both personnel and production factors.
3. Setting of the actual incentive rates relative to the first two factors.

Methods of applying these three factors to create a fair and effective incentive structure are still largely misunderstood. Many executives still think "incentive" means either payment of straight piece rates, or, at the other extreme, use of cumbersome formulas and maintenance of a large payroll staff to operate a complicated plan that none but a qualified expert can understand.

Actually there exists many different wage plans, all of which embody the element of incentive payments—some are simple, some are complicated to set up and maintain. Among the factors that influence the selection of an applicable wage plan are: the plant size and activity, diversity of products made, personnel and production facilities.

Standard Allowed Hours

One of the most widely adaptable and used plans is the "Standard Hour" plan of wage payment, because its measuring unit can be applied to any task. It is quickly understood by all labor elements because the only calculation required are a simple multiplication, followed by an addition. By the same token, it is easy to administer by Management.

The basis of the "Standard Hour" is time rather than money. Therefore, standards for various opera-

(*Continued on page 398*)

COURTESY LEDERLE LABORATORIES

Lontab repeat action Tablets

BY JACK COOPER CIBA PHARMACEUTICAL PRODUCTS, INC.

The preparation of drugs orally administered with the capacity of releasing the active principle in a predetermined and controlled manner represents a recent development in pharmaceutical research.

Attempts have been made for more than 100 years to perfect a principle of coating that would enable a drug to by-pass the stomach and be absorbed in the small intestine. However, the principle of sustained or prolonged action is more advanced, since it introduces a new therapeutic technique into the oral administration of drugs.

Development by Ciba Pharmaceutical Products of the Lontab (R), a tablet which gives medication consistently sustained for 12 hours, is the latest and perhaps most significant of these attempts.

In a perfected state, which the company believes it has approached with the new tablet, this principle serves to reduce the number of doses administered, maintain an even level of drug concentration in the body, eliminate the dips in drug concentration inevitable with divided doses, and reduce the total amount of drug needed to obtain the desired therapeutic result.

Several methods have been utilized in efforts to obtain sustained release effects:

Coatings removed by the normal mechanical action of the gastro-intestinal tract.

Coatings insoluble in the acid medium of the stomach but soluble in an alkaline medium.

Coatings insoluble in gastric fluid but rendered soluble by the chemical and enzymatic contents of the small intestines.

Tablets which are insoluble but which are eroded and dispersed by the contents of the G.I. tract.

The Lontab principle utilizes the last approach.

The task entrusted to the Pharmacy Research group was the development of a tablet that would provide prompt therapeutic effect uniformly sustained over a long period of time, yet would adhere to the principle that the optimal level of a drug is reached when therapeutic results are obtained with the minimal effective dose.

The problem with conventional type tablets was that they were so designed that although the onset of relief was rapid, the therapeutic level was initially higher than necessary, then fell off fairly sharply until the next tablet was taken. This resulted in a sort of "peak-and-valley" therapeutic effect.

Although repeat-action tablets and time-release capsules, which are supposed to give more rapid and complete relief and constant and sustained protection, were already on the market, it was felt that neither were wholly satisfactory.

In repeat-action tablets, the outer coating dissolves rapidly to give the initial dose. The core is especially coated to delay disintegration for the approximately four hours or more during which the medication in the outer layer takes effect. At the end of the first four hours the inner core begins to break up and gives the second dose, which also provides approximately four-hour therapeutic effect.

The time-release capsules contain little spheres, each of which hold the drug. Some of these spheres, or granules, are covered with delaying coats. The coats vary in thickness thereby controlling the disintegration rate of the spheres. The uncoated spheres dissolve immediately, giving the initial dose; the thinly coated

granules give the second dose, the more thickly coated, the third dose, and so on.

One difficulty or disadvantage of the repeat-action tablet is that where sufficient medication is incorporated to give relief for long periods, amounts in excess of immediate needs are liberated into the blood shortly after ingestion. The levels of the drug drop off sharply as the drug is metabolized. This also generally occurs with the inner core. The result is that the therapeutic peaks rise sharply and then fade rapidly in two stages, therefore having no therapeutic advantage over conventional tablets taken at regular intervals.

Action of the time-release capsule is smoother, but it shares two disadvantages in common with the repeat-action tablet, and that is the enteric coating and the pharmaceutical process of pan coating.

Enteric coatings are applied by the standard pan method and are difficult to control during application. Any imperfection means that the coating will be penetrated prematurely and unpredictably and the medication released too quickly. There would be no way of controlling the rate of release.

The standard pan coating procedures involve the application of repeated doses of syrups revolving in a drum or pan, with intervals of drying to permit the build-up of the coat. As many as sixty applications may be involved. It is extremely difficult, if not impossible, to obtain uniformity of the coating material and medication with this type of operation. The effectiveness of the coating depends on the skill of the operator.

The pan coating process is also beset by technical difficulties, depending on the nature of the drug. The drug present in the coating may be hydrolyzed, may react with other ingredients or change color because of moisture. Substances affected by moisture must be protected during the coating process by moisture repellant coatings which, in turn, tend to prolong unduly the disintegration time of the finished tablet.

In addition, the process is time consuming.

Because of these disadvantages, the pan coating method was discarded during the early stages of development. The solution to the problem was discovered in the use of dry coating, a new process which although it had been described as early as 1897 had not heretofore been perfected to the point where it would be feasible for large-scale commercial operation.

With the use of newly installed Manesty DryCota machines the variability and moisture was taken out of the coating operations and cores could be compressed and accurately coated within a matter of seconds.

The dry coating technique enabled the researchers to utilize the coating for more than just a means of making the tablets more palatable or to protect them from the elements. In addition the medication itself is incorporated into the coating to achieve an immediate, controlled therapeutic effect.

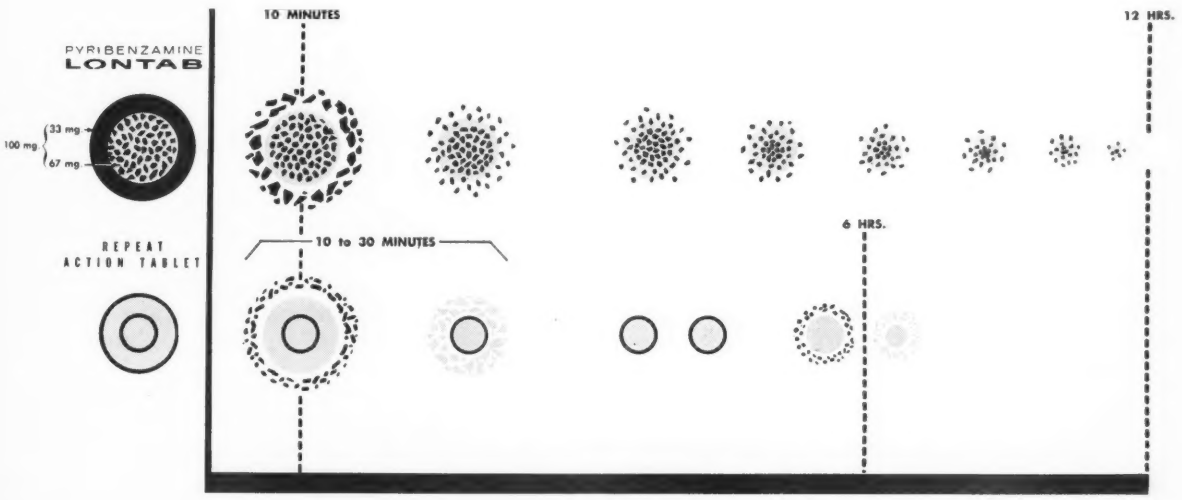
The Lontab outer shell consists of Pyribenzamine hydrochloride, in combination with such excipients as lactose and sugar; tragacanth and acacia for binding and such lubricants as talcum and magnesium stearates. The ingredients common to enteric coatings, such as shellac and cellulose acetate phthalate, were not used.

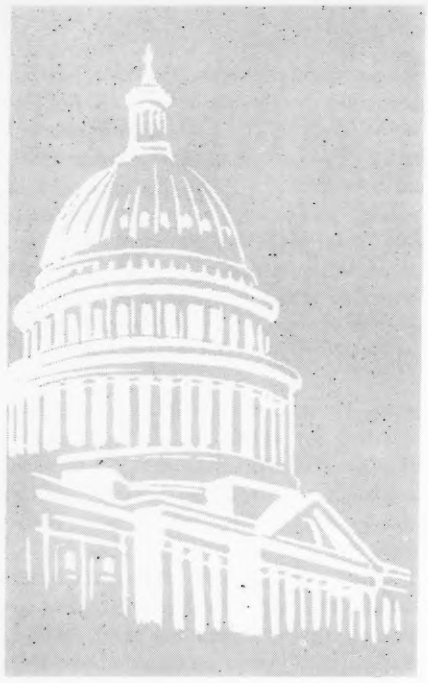
Although this coating insured an immediate and uniform release of the drug, this did not solve the problem of the prolongation of the drug's therapeutic effects by the required 12 hours. Incidentally, although subsequent tests were made for 12-hour periods, the investigators were concerned only with an 8 or 9-hour absorption period, since the end result would be a 12-hour effect due to residual action of the drug.

The tests indicated the following release rate for the antihistamine: 33 1/3 mg. immediately; 18 mg. within the first hour; 7 mg. within the second hour; 4.5 mg. the third hour, and a fairly constant average of 3.5 mg. in each subsequent hour up to the 12th hour.

What was necessary then, was to devise a core that

(Continued on page 400)





the WILLIAMS BILL HR 9153

The Toilet Goods Association, keeping a watchful eye on National, State and Local legislation that might affect the welfare of the cosmetic industry, has contended that no additional cosmetic legislation, with the exception of a revision of the color certification provisions, is either necessary or desirable. Nevertheless, the pressure for increased and often unnecessary regulation continues to grow. One Eastern state legislator each year introduces a bill, just as regularly beaten, to ban the sale of deodorants or to require labelling listing all ingredients, including perfume components. Another wants hair coloring preparations treated in a like manner. The Delaney, and the identical Sullivan bills include provisions for complete ingredient labeling as well as other burdensome and unwarranted provisions. In a series of articles in this magazine in 1952, 1953 and 1954, hearings and the bill itself were reported and discussed.

A third bill introduced by Representative John Bell Williams, is drafted along different lines and the Association is not opposed to its enactment. Since some sort of legislation seems inevitable, the TGA believes that the Williams bill might well be beneficial to the industry.

The bill, HR 9153, is intended to amend the Federal Food, Drug and Cosmetic Act with respect to cosmetic ingredients. Section 201 of the Act, which defines various aspects of foods, drugs and cosmetics, will be amended to define a new cosmetic ingredient as "any substance which is intended for use (A) as a component of a cosmetic or (B) to preserve or alter any cosmetic or any characteristic of any cosmetic" but exempts substances recognized in the literature or by qualified experts, or through prolonged use to be safe under normal conditions of use and provides for exemptions for substances to be included in a published list. The term "safe for use" as used in the proposal means that there is reasonable probability that the substance can be used under conditions of intended use without injury to the user, but not necessarily "absolutely safe" under all conditions.

A new cosmetic is any cosmetic containing a new ingredient.

Section 3 of the new bill, amending section 601 of the Act, would read "hair dye" instead of "coal tar hair dye" with respect to warning provisions.

A cosmetic product would be considered adulterated under the Act if it contained a non-exempt new cosmetic ingredient, unless the ingredient had been in use two years after the enactment of the proposed bill. New ingredients are exempted when they are intended solely for investigational purposes and not for sale to the public.

A new Section 604 provides for the separate listing of colors suitable for use and harmless in cosmetics and for certifying batches of colors with and without diluents. The regulations will also include, where necessary to protect public health, restrictions as to area of application and maximum permitted concentrations. Colors will be exempt from certification where certification is not necessary for the protection of the public health.

Section 605 permits any person to file an application for approval of a new cosmetic ingredient. The application must contain full reports of investigations (including references from the scientific literature) to show whether or not the new cosmetic ingredient is safe for use as a cosmetic or cosmetic component; a full statement of composition; description of methods for control of quality and uniformity; a statement of proposed use; and, if necessary, samples.

Within 30 days of filing, the Secretary will publish a notice of a petition and within 60 days (or 120 days if needed) the Secretary will publish a regulation either

(Continued on page 401)

Packaging and Selling

Ipana Plus in a Squeeze Bottle
will be introduced next month by Bristol-Myers. An unusual opening assures an instantaneous flow of dentifrice, and a flat base prevents the bottle's rolling off shelf or sink. On the seven-oz. blue bottle, made by Plax Corporation, the crimson Ipana Plus logo is against a white background. The word "dentifrice" is white on crimson. Owens-Illinois made the white closure. Details of the design were carried out by Egmont Arens in conjunction with the Bristol-Myers packaging group.

GIVE YOUR CUSTOMERS A

Bonus of Beauty

PLASTIC BOTTLES BY CONTINENTAL

Know how to please a lady? Here's a profitable way, if you're a cosmetics manufacturer. Simply add the feminine appeal of Continental's glamorous plastic bottles to your product.

We have plastic bottles available in many, many pleasing shapes and colors, all designed to appeal to women. Or, if you prefer, we will design one especially for you. Either way, you'll get a container so attractive it will rate an honored place on milady's dressing table.

You give your customers extra convenience with plastic bottles, too. Each one is a custom-built dispenser for the product within, whether it's sprayed, squeezed, or sprinkled. Continental plastic bottles give constant protection to a cosmetic, and it's always ready to use. Drop it on the floor? No disaster! It can't be broken and won't leak.

Why not cash in on this "bonus of beauty" yourself? Call Continental today for the full story on our complete line of glamorous plastic bottles.

CONTINENTAL CAN COMPANY

PLASTIC CONTAINER DIVISION

100 EAST 42ND STREET, NEW YORK 17, NEW YORK

2930 NORTH ASHLAND AVENUE, CHICAGO 13, ILLINOIS

Houbigant's Hermetique Atomizer

FIRM SEES LARGE AEROSOL AS KEY TO INCREASED SALES OF PERFUMES

Convenience and economy are the appeals Houbigant, Inc. will use in merchandising its Chantilly and Flatterie perfumes in a large size aerosol called the Hermetique Atomizer. Pierre Harang, vice-president and director of Houbigant has stated his belief that "the Hermetique perfume atomizer can literally change the perfume habits of American women, for it combines the convenience of the purse flacon with the economy of the dressing table size."

The Hermetique will be offered in two sizes: 4/5 oz. and 1 3/4 oz. Prices are $7.00 and $13.00 for Chantilly; $8.50 and $15.00 for Flatterie. Ads in Charm, Glamour, Vogue, Harper's Bazaar, Mademoiselle and the New Yorker will support the debut of Hermetique this Fall.

The healthy sale of purse size perfumes indicates that women will use perfume if it is in a convenient flacron or dispenser. They will not, however, buy large sizes despite their economy. Houbigant believes that there are at least two reasons: Women have not had a convenient applicator to enable them to enjoy the real effect of fragrance which is best when atomized. Second, they are aware of the possibilities of spillage and spoilage.

The sales strategy Houbigant will use to overcome women's reluctance to buy large size perfumes is suggested in the copy of its cooperative ads: "Protect your precious perfume from evaporation in the new Hermetique

can with CROWN Spra-tainers

For sunburn remedies or pressurized antiseptics—for literally hundreds of medicinals such as lotions, antibiotics, and inhalants—*can* with CROWN, the only source for Spra-tainers . . . seamless or fabricated.

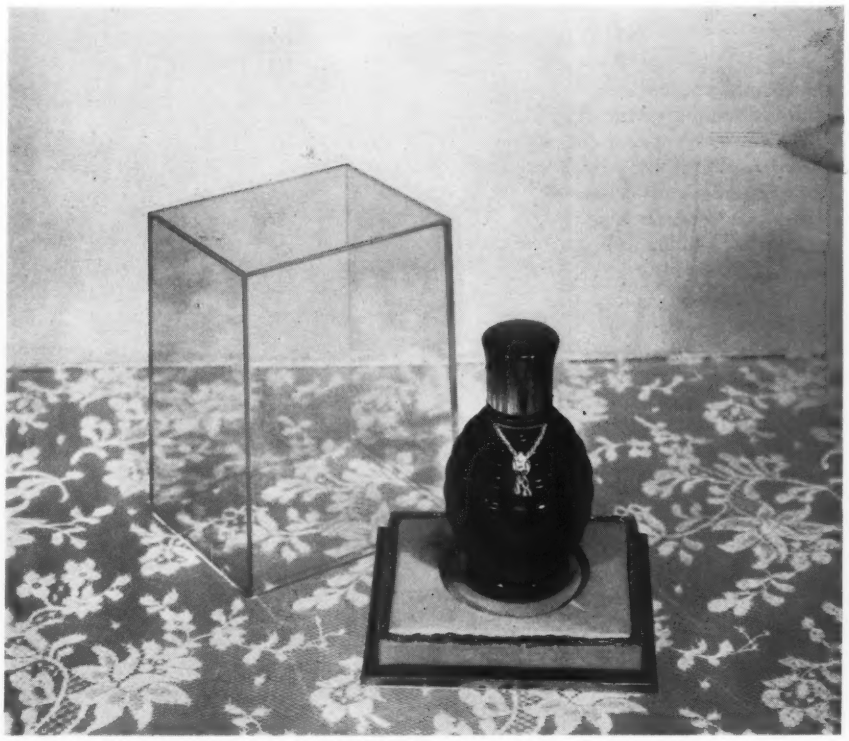
As the originator of Spra-tainer, the disposable aerosol containers, CROWN produces more pressure cans than any other company. When you call on CROWN leadership and experience, you get packaging ideas that make old or new products pay off at retail levels.

Write for your copy of CROWN's new 3rd edition—"GUIDE TO PRESSURE PACKAGING." Crown Cork & Seal Company, Inc., Can Division, 9350 Ashton Road, Philadelphia 36, Pa.

whatever you can . . . call on CROWN

CROWN CORK & SEAL COMPANY, INC.

MANUFACTURERS OF CLOSURES, CONTAINERS AND MACHINERY



Atomizer. Your fine Houbigant perfume in the Hermetique Atomizer stays fresh indefinitely because it is completely sealed from air . . . can not leak, clog, spill or evaporate. For added convenience the Hermetique Atomizer automatically meters each application . . . what you buy you use. Now, you are sure of wearing the right amount . . . never wasting the fragrance."

To educate salesgirls, the firm is sending each a training bulletin as well as a tester around which will be an instruction slip explaining selling points. The training bulletin states that recent surveys indicate that women do not know how to use fragrance in aerosol containers. They spray the fragrance from a distance of twelve inches or so, which is fine for a hair spray but not very effective or economical for fragrance. The bulletin explains that Hermetique perfumes will yield maximum fragrance value if held three to five inches from the area to be perfumed.

The instruction slip accompanying the tester, besides listing the advantages of the Hermetique, suggests that the salesgirl point out to the customer that there are 450 applications in the 4/5 oz. bottle and 1,000 in the 1 3/4 oz. size. It also states that the customer receives 35 per cent more perfume value from the Hermetique than from the conventional perfume presentation.

HOW YOU CAN

PACKAGE FOR PROFIT

IN 1957

In the Pharmaceutical Market...

growth aerosols point the way to volume sales

For packaging drugs and pharmaceuticals the aerosol offers some outstanding advantages: The sealed container prevents contamination of ingredients, spilling is eliminated, and rapid uniform application of medicament is possible. In addition, a fine mist can be readily formed for inhalation purposes.

Aerosol pharmaceuticals have a really bright potential for future growth. Production has grown steadily to over two and a quarter million units in 1956, and the growth rate today is such that about four and a half million units are predicted for 1957.

Du Pont's consumer survey covering burn preparations, antiseptics and bandages showed a large total market for these pharmaceutical products in all forms of packaging, but a striking lack of awareness of the aerosol. Yet where housewives *had* tried these pharmaceuticals in aerosol form, they indicated a definite preference for the aerosol method of application. Why not package your pharmaceutical product for profit in an aerosol?

Send for your free copy of Du Pont's survey report on the market for aerosol pharmaceuticals. Write E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division 159, Wilmington 98, Delaware.

About fifty pharmaceutical items packaged in aerosol containers are now on the market, and several more are in the development stage. These include such products as inhalants for asthma relief, burn sprays, poison-ivy sprays, and antiseptics, anesthetics and antibiotics for topical applications.

For help when you package for profit call in a custom aerosol filler

You can get help in planning for your aerosol product, and you don't need experience or expensive equipment. Just call on a custom filler. He can help in many ways—product evaluation, formulation, testing, container selection and labeling, filling, packing and shipping. When you select a filler, be sure he uses Du Pont Freon* propellents for your product. With "Freon" you get a propellent backed by the industry's most comprehensive technical and marketing services and more than 26 years of Du Pont manufacturing leadership. For names of qualified fillers near you, write to E. I. du Pont de Nemours & Co. (Inc.), FREON® Products Division 159, Wilmington 98, Delaware.

**Freon and combinations of Freon- or F- with numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon propellents.*

FREON® *propellents*

DU PONT

REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

TILFORD'S Packaging Feat

Tilford Toiletries challenged time to a race and won. In designing and producing 54 different packages between April 15 and June 21, the firm has doubtlessly established several records. Confronted early in April with a June 24 deadline—date of its national sales meeting—Tilford outsprinted the calendar by three days and sent each salesman on the road with live merchandise.

Guiding force behind this packaging feat was an energetic and talented trio: Jack H. Mohr, vice-president of Park & Tilford and head of its Tintex and Toiletries Division; Fred Q. Swackhamer, the division's director of advertising; and Al Berwinkle, art director of Grant Advertising Agency. This triumvirate burned much midnight oil in creating packages for the full line of Tilford Toiletries.

First and biggest obstacle was glass. After hurdling this, the remaining barriers were relatively low. But they were many. Tilford had decided to upgrade its line. (Prices now range from $1.50 to $18.00.) And distribution outlets were being widened to include department stores, drug chains, and selected wholesalers. Furthermore, packages had to lend themselves to effective television advertising. Mr. Mohr has announced that the Toiletries and Tintex Division will sponsor an alternate-week segment of NBC-TV's "Queen for a Day," starting Sept. 25.

A powerful campaign in newspapers, womens' and fashion magazines, and industry and trade publications will also be used to back up the sales drives of the two divisions, according to Mr. Mohr.

Tilford executives have expressed pride in being the first to introduce a product (Stay Put Hair Spray) in Du Pont's new Zytel bottle. And they have been eager to state that the cooperation of other suppliers contributed greatly to the victory over time.

NEW FULL LINE of Plastainer Vials by Owens-Illinois

. . . includes Snap-Cap vials, any color, plain or imprinted . . .
NEW FORMULA
ALPERSAC
FOR QUICK RELIEF OF ACID INDIGESTION
ADULT DOSE:
2 TABLETS WITH FULL GLASS OF WATER
JONES BROWN & CO.
TOLEDO, OHIO
. . . Snap-Cap vials in many transparent colors . . .
. . . Stopper vials, crystal clear or in transparent colors . . .
Rex Hollyweed's
KOMPACT
TABLETS
FOR DRY SKIN
HOLLYWOOD
LONDON
. . . Stopper vials, any color, plain or imprinted.

Here is a random grouping of the full line of O-I Plastainer Vials. Available with Snap-Caps or Stoppers . . . in clear or a wide variety of colors . . . opaque or transparent . . . in 5 sizes—3, 5, 7, 9 and 13-dram (and 15-dram, stopper only). Each typifies the quality of the molding facilities at Owens-Illinois. Call your nearest O-I office for details.

Branch Offices:

Albany . . . New York	Dallas . . . Texas	Memphis . . . Tennessee	Portland . . . Oregon
Atlanta . . . Georgia	Denver . . . Colorado	Milwaukee . . . Wisconsin	Richmond . . . Virginia
Baltimore . . . Maryland	Detroit . . . Michigan	Nashville . . . Tennessee	Rochester . . . New York
Birmingham . . . Alabama	Elkhart . . . Indiana	New Orleans . . . Louisiana	Sacramento . . . California
Boston . . . Massachusetts	Fresno . . . California	New York . . . New York	St. Louis . . . Missouri
Buffalo . . . New York	Hartford . . . Connecticut	Oakland . . . California	St. Paul . . . Minnesota
Charleston . . . West Virginia	Houston . . . Texas	Oklahoma City . . . Oklahoma	Salt Lake City . . . Utah
Charlotte . . . North Carolina	Indianapolis . . . Indiana	Omaha . . . Nebraska	San Francisco . . . California
Chicago . . . Illinois	Jacksonville . . . Florida	Peoria . . . Illinois	Seattle . . . Washington
Cincinnati . . . Ohio	Kansas City . . . Missouri	Philadelphia . . . Pennsylvania	Toledo . . . Ohio
Cleveland . . . Ohio	Los Angeles . . . California	Pittsburgh . . . Pennsylvania	Yakima . . . Washington
Columbus . . . Ohio	Louisville . . . Kentucky		

Pacific Coast Headquarters, 350 Sansome St., San Francisco . . . Plants at San Jose, Calif., St. Charles Ill., Glassboro, N. J., and Riverdale, N. J.

OWENS-ILLINOIS PLASTICS
AN (I) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO

Packaging and Selling

Low Pressure Selling

This department has been extremely interested in the growing discussion that is taking place in business publications on what is usually called low pressure advertising.

Although this is in the news, low pressure advertising is very far from being new either in this industry or in other industries and trades.

For instance, the institutional approach by Ohrbach, the New York department store, for their retail advertising has been going on for over thirty-four years. According to a statement recently, by Mr. Ohrbach, this type of copy has enabled the New York store to keep its name in the retail limelight at about one-quarter of what its competitors spent on ads.

About 95 per cent of Ohrbach's ads are devoted to evoking consumer appreciation of (1) high fashion, (2) low price, and (3) large selection, in that order.

In the cosmetic industry three outstanding advertisers today, in our opinion, are Breck, Chanel and Shulton. These ads, we believe, can all be described as low pressure advertising and yet they have a vivid, distinctive, attention compelling character that has built up a very definite and favorable impression of the company and its products in the consumer's mind.

These campaigns are very far from being dominating in a dollar or space sense. As a matter of fact, Breck is struggling against much larger ad competition in advertising.

It is interesting to note that while these advertising campaigns progressively gather laurels, sales and dividends, that the Federal Trade Commission is citing three other cosmetic companies for wildly exaggerated and untruthful statements. At least in the case of two of these companies the result of heavy investment in misleading statements is that sales are reported to be progressively slipping.

The ethical pharmaceutical industry have many notable examples of low pressure selling. The distinctive thing about ethical low pressure selling, however, is its lack of consistency which, by the way, Mr. Ohrbach cites as one of the essential ingredients of this type of advertising.

Scented Advertising

Who could have guessed that a professional advertising executive would violently object to the development of a new dimension in selling.

And yet this appears to be taking place in a recent surge of fragrance used in advertising.

Just recently Canada Dry ran an advertisement in a Boston newspaper in which they used a special purple ink perfumed with a grape aroma for its grape soda.

The Fairmount Foods Company of Omaha has just announced that it will use a red ink perfumed with the aroma of strawberries and featuring a picture of a heap of strawberries behind a Fairmount container.

Apparently these scented advertisements are creating some psychological as well as some mechanical difficulties. According to a recent story in Advertising Age, an irritated advertising agency man reacted in this fashion; "What's the sense in all these scents? The other ads in the edition which carries these scented ads will all smell the same way, unless other presses are used. It's an invasion of privacy through the olfactory nerve."

"A lot of people, and I'm among them," he continued, "have a keen sense of smell. It's bad enough to have to put up with the stenches and stinks of a modern industrial city . . . car fumes, industrial fumes, tobacco fumes, subway stinks, and the gals' powders, perfumes, lipsticks and rouges. If we have to endure a lot of additional synthetic food odors whenever we open a newspaper, it's just too much."

An addition to this confusion was an episode which caused a great deal of amusement to the readers of the Toronto Telegram. This started with an advertisement by James Lovick & Company for Maple Leaf Soap which showed a girl with a bath towel, saying, "Honestly, you will like the scent on page 13." On page 13 was another ad on Maple Leaf Soap showing the product and scented with the odor of the soap. Unfortunately, however, the newspaper make-up man had placed a much larger advertisement by Chase & Sanborn on the facing page which showed a man in a shower peeking out from behind the curtain and saying, "Hey, what smells so good?"

Nobody in the advertising profession has been able to decide which this helped or hurt the most, the coffee or the soap in these two ads.

The fragrance industry has been experimenting with, and exploring many different avenues in which they might employ the sense of smell in selling merchandise. These explorations go back longer than twenty-five years and have included such diverse efforts as scenting children's wear, writing paper, nylon stockings, gift cards and a really large and diversified list of merchandise in which it was thought that the use of fragrance as a compliment to the use of color

or as a psychological stimulous for prestige atmosphere or quality would add a special plus in selling.

Just recently with the appearence of a new company which has been promoting the use of scented inks in advertising there has been quite a flurry of interest in the food industry to add the new dimension of scent to that of eye appeal in colored advertising.

We anticipate a number of mechanical difficulties which will undoubtedly be overcome.

But it is rather shocking and startling to us that there should be any opposition from the advertising profession.

Better Trade Relations Needed

There is unquestionably a growing conviction among advertising men and among manufacturing executives that a great deal of advertising dollars today are being spent merely to match dollars and to stimulate a merry-go-round where one brand is snatching sales from another only to lose those sales to still another brand. Although advertising may not, by any means, have reached a saturation point, there is certainly a feeling among a great many big advertisers that the further expenditure of dollars in consumer media will not bring a proportionately profitable result.

At a recent meeting of the Grocery Manufacturers of America, one manufacturer cited the case of an advertising agency's remark "So we're taking five pages in Life; isn't that enough?" The answer to this was, "So is everybody else." Among the issues which food executives took with advertising agencies was that the broad overall approach of letting the consumer advertising do the entire job was not enough. One of the recommendations of the food executives were "More intelligent use of trade paper advertising should be made."

Along this line here is a quote from E. B. Weiss, who has spent very many years in marketing and retail merchandising. He said, "It would hardly be proper to call it a trend, but I believe I am beginning to discern an increasing use of business paper advertising to explain basic company policies to the trade—to use this white space, in other words, for something resembling heart-to-heart talks with a manufacturer's distributors and dealers.

"It strikes me as an excellent idea. I have a notion that, in some major categories in particular, trade relations have ebbed pretty low."

It does seem to us, in the course of reading many business publications, that a real sense of frustration is beginning to grow among the big advertisers from a feeling that the mere expenditure of dollars in consumer media will not do the entire job of marketing for them. We suspect that there is also a feeling, in some quarters at least, that money has been overspent in consumer media to the exclusion of building better trade relations. Maybe we are in for a change from the thinking of the last few years, where it seemed as if the mere expenditure of a multitude of dollars in consumer advertising was the whole answer to successful business.

Incompatibility

"Monsanto's consumer product division is dissolved." That was a brief announcement that eliminated from the program of this huge chemical company its entire consumer division.

It is very strange and interesting to us how history keeps repeating itself over and over again. Repeatedly during the history of the heavy chemical industry in this country, many of the large chemical companies have felt that their specific control of some raw material, some patent, or some advantage derived from research should lead them into packaging a product for the consumer and entering into their customer's business.

Going all the way back to the days when Allied Chemical had its packaged baking soda, it has been written on the record of the chemical industry that the type of executive who thinks in terms of selling tonnage to industrial consumers can rarely adjust his mind to the antics of packaged merchandising to the consumer.

We see this same psychological block repeatedly being shown also in the different kinds of mentality which it takes to operate in mass distribution as compared to selling in selected distribution a fashion or prestige product. It can almost be said that never the two minds will meet and that the man who has shown any degree of mastery in marketing in the mass market, simply cannot comprehend the policies that must be followed in the restricted field of selected distribution.

Selective Inattention

A professor of psychology, that is Dr. John Dollard of Yale University does not think that there is anything to be afraid of in the so-called fear that some people have of advertising.

In an address before the Advertising Research Foundation Dr. Dollard stated that the fears some people have for advertising comes under three headings:

1. The notion that advertising can compel people to do anything it wants.
2. The notion that the study of man's unconscious needs by motivation researchers will put a dangerous tool into the hands of the advertisers.
3. That continued advertising suggestion will lead to a stunting and withering of the independent personality.

Dr. Dollard dismisses the first fear as a delusion. He cited case history studies involving Army propaganda programs where, no matter how much information was provided on why men do certain things, their basic attitude was still left relatively unaffected. He adds that the Communists have been only temporarily successful in "brainwashing" captured soldiers. Advertising campaigns frequently fail because the advertising nourishes skepticism.

Dr. Dollard's opinion in this first fear is certainly being conclusively proved by the collapse of Communist training and propaganda in the schools and colleges in satelite countries.

Dr. Dollard also thinks that there is no reason to fear that motivational research will give the wrong people too much power to push around the human

STRIKING CAN DESIGN AND LITHOGRAPHY GIVE PRODUCTS INSTANT BRAND IDENTIFICATION . . .

Aren't these cans familiar? They are to most people for two good reasons. One, they hold well-known brands. Two, they're packaged for instant recognition in Continental specialty cans. Each can has been made a national landmark by Continental craftsmen. That's because these specialists have an expert way with design and lithography. The colors and patterns they produce are *outstanding*.

Why not put these Continental services to work for you? You're sure to get a can that's just the right size, shape and design to make *your* product a permanent landmark in today's homes.

Continuous message... Continuous design

Readily identified in the store, whichever face it shows. Readily identified as a Continental specialty can because of its dramatic lithography. We've a palette-full of colors for your choice.

QUALITY Continental SERVICE

CONTINENTAL CAN COMPANY

Eastern Division: 100 E. 42nd St., New York 17
Central Division: 135 So. La Salle St., Chicago 3
Pacific Division: Russ Building, San Francisco 4

Craftsmanship

AN INTEGRAL PART OF THE CONTAINER WHEN MARYLAND GLASS TAKES OVER YOUR DESIGN PROBLEM!

When you drop a packaging problem in our lap, the end result is more than a glass container. It is an *idea* . . . born of restless imagination, shaped by skilled hands, backed by years of sound experience. Our creative staff gives you a selling package that packs well, ships well and pushes your product on the shelf. For a successful solution to your design problem, contact MARYLAND GLASS CORPORATION, 2147-53 Wicomico St., Baltimore 30, Md.

STOCK DESIGNS
—A variety in blue or flint glass and a complete range of sizes is ready for immediate shipment.

PACK TO ATTRACT IN

Maryland Glass

BLUE OR FLINT JARS AND BOTTLES

herd. He points out that many unconscious motives are not very nice and, therefore, cannot be used in advertising appeal and that also these motives come in conflicting pairs, and that you cannot invoke desire, for example very often in many cases, without invoking disgust.

There is very little chance that advertising will stunt individual personality. Dr. Dollard makes the point that the majority of people do not recall printed ads they read and are able to "tune out" television commercials simply by not listening to them. Dr. Dollard thinks that people hear ads and commercials that they want to see and hear, and they reject all others. He says, "It is our pride in a free society that we skip, resist and denounce what we do not like."

Along this line we would like to quote another speech by Harry McMahan, TV consultant, Institute for Motivational Research. Mr. McMahan states, "Bombarded with a minimum of 210 TV commercials each week, the average television viewer is developing a new ailment, Selective Inattention."

Not only TV, not only radio, but an unfortunately increasing volume of printed advertising today is justifiably earning for itself selective inattention. During these last few years of vast expenditures in advertising, there is on record now a number of serious failures to perform.

In one case the complete collapse of an advertising camapign of over $1 million was recorded in the annual statement. In another case the collapse of a campaign of several million dollars on television has been vividly recorded on the stock market. In a third case the collapse of several hundred thousand dollars invested in Sunday newspaper magazine supplements has been acknowledged, but not yet recorded.

With some familiarity with these three advertising campaigns we would like to comment that they not only richly merited "selective inattention," but deserved frank and open disbelief.

Here and There

The Federal Trade Commission seems to be paying specialized attention to the television programs of this industry. Those favored for making questionable statements over television include Helene Curtis, Lanolin Plus and Whitehall Pharmaceutical.

It has seemed to us that a certain area of advertising competition in this trade has been going to hysterical limits of blatant misstatements. We would say that certain television programs by this industry are making an unduly large contribution to consumer disbelief in advertising statements.

This year Houbigant has an ambitious television program called "Arrangement in Flowers" starring J. Gregory Conway, "the master of floral arts" who toured the country last year giving flower-arrangement demonstrations for Houbigant. This new TV feature will feature one well-known garden flower and show various ways to arrange it. This will be one of the first TV efforts in this trade to use color.

In a Salt Lake City survey, over 60 per cent of the women interviewed stated that they bought cosmetics in supermarkets. In a similar survey in 1953, only 40 per cent were supermarket cosmetic buyers.

However, 51 per cent of those interviewed said that they bought toilet articles "most often" in drug stores.

According to a study by Printers' Ink, the number of advertisers spending a million dollars or more a year in seven measured types of media showed a new high of 374 millionaire advertisers in 1956 as compared to 290 in 1955.

Helpful Brochures

The NACDS Directory of Associate Members has just been received. This is a very useful complete book which gives the roster of personnel for the cosmetic, drug and other supply companies who are associate members of the National Association of Chain Drug Stores. This association is located at 4 Park Avenue, New York 16, New York.

We have also received from Eli Lilly & Company the new Lilly Digest for 1956. As before, this is a comprehensive, authentic and reliable study of drug store operations.

Because this is the Silver Anniversary of the issue, that is twenty-five years of publishing, it is more complete than usual.

We were interested in one comment from the Foreword. "In 1932, one of every three of the store owners included in the Lilly Digest reported that he was unable to obtain an income that was as much as the average pay for pharmacists employed in drug stores. It will be recalled, of course, that the going rate of pay for a pharmacist employee was an appallingly low figure during that year. In 1956, the number of drug-store owners unable to obtain incomes from their stores equal to today's vastly higher prevailing rates of pay for pharmacist employees was only about one in ten."

Non-Food Debate

It looks like the beginning of a strenuous debate among supermarket operators over the future growth of non-food items in supermarkets.

According to many reports and quotes in the business press and at conventions, a number of supermarket operators are beginning to have serious misgivings about the extent of non-food expansion in these stores.

Recently, in Chicago, the Supermarket Institute set up an eight man committee headed by Robert B. Wegman, president of Wegman Food Markets, Rochester, to study "non-foods productivity."

Specifically, the committee is instructed to find out how supermarkets stand on such questions as—

1. Non-food item costs.
2. What kinds of non-food items belong in supers?

Many supers are already running into trouble with assortment of sizes, color and fashion problems and expensive warehouse space is being occupied by products which turn over far too slowly for the super type of operation.

3. Relative rates of turnover.
4. Mark downs and unit control.
5. Fixtures and bookkeeping.

Under bookkeeping many operators believe that

they lack information on how much space should go to non-food items, how to display these products properly and data on space and shelf costs.

On the other side of the fence a great deal of enthusiasm for health and beauty products were shown at the recent McCall's Magazine Health and Beauty Aids Forum in which a large representative group of supermarket merchandisers met with manufacturers of this trade for a panel discussion on mutual problems.

At this panel some of the operators not only declared their intention of going deeper into the problems of this trade, but even said that the class or prestige cosmetics is "a category which needs development badly and we intend to develop it."

Bill Pomerantz of Penn Fruit Company took the floor to tell delegates that some prestige cosmetic houses "have too much prestige." He added, "I think the day is coming, gentlemen, when you will want to sell us color, you will want to sell us all of these prestige items."

So there you have two extremes, which may indicate that even supermarkets are breaking up into class or prestige stores and mass utility stores.

Why Not Leg Make-Up?

Some weird and wonderful conclusions have resulted from some of the marketing surveys of this wonderful era. One of the most intriguing conclusions recently developed from a market survey sponsored by Dupont to discover the basic reason why so many of their nylon hosiery manufacturers were losing business and why there were so many bare-legged females running around the country.

"One of the important findings of the survey," said a Dupont research supervisor, "is that women seem to feel that the sexual significance of their legs is declining. Emphasis has moved from the leg since the era of Marlene Dietrich and Betty Grable. We must re-establish leg consciousness to have the best chance of upping sales."

While we may all marvel at the conclusion dawn from this survey, we must certainly applaud Dupont's decision to take immediate action in a matter as grave and serious as this.

Cosmetic makers take notice. We once had the cosmetic stocking. Is leg make-up so far fetched?

Six Rules for a Trademark!

A trademark is a businessman's best friend, at least when it's a good one, but it can also be one of his biggest headaches.

This industry long ago reached the headache stage in selecting a new word for a trademark. In addition to all the legal complications and restrictions, we are simply running out of words in the English language. For instance, in the Trademark Record and the two supplements published by this company, there are over 20,000 active listed cosmetic and perfume trademarks. It is possible that there are another 5,000 to 10,000 valid, but unlisted trademarks. The result is that when anyone needs a new trademark in the cosmetic or perfume branch of this industry, they are practically faced with the necessity of either coining a new word or of making a formulation of two words or more.

The cosmetic industry certainly exceeds any other industry by a very broad jump in this wasteful use of trademarks. There must literally be thousands of trademarks that can still be protected by the company that owns them, but which from a commercial viewpoint are practically dead. These trademarks all arise from the trademarks used for the constant flow of promotions, of new products that falter and hardly make the grade, and from a vast shadowland of tiny companies operating on a local basis.

Nevertheless, it is impossible to think of this industry as it exists today without the trademark. It, therefore, becomes the obligation and the responsibility of business management in every company to keep a watchful eye over the health and security of their trademarks.

It is fortunately true that very few companies face the danger of their trademark becoming so widely identified with a class of products that it is termed "generic" and, therefore, loses its validity as a trademark. The famous cases in which this happened are "Cellophane", "Aspirin", and "Milk of Magnesia."

Still it is true, that even in the smallest companies certain precautions should be taken to defend the trademark. This, of course, means defense against purposeful or chance infringement, but it also means a certain precaution that the trademark is kept intact as to its spelling or in identification that gives it its distinguishing character.

Most big companies take what they call policing with a great deal of seriousness. This policing is not only done within their own industry and with all types of publications, but specifically within their own company. This policing is to make sure that the trademark is spelled properly, or punctuated properly, or capitalized properly, or in any other form that gives it its true identity. In most big companies even a careless one-time misspelling of the trademark by a stenographer in a letter is taken seriously. When a trademark is abused or misrepresented unintentionally in the news reports these companies are usually meticulous in asking the editor to avoid repeating such a mistake.

A number of the big companies, which publish booklets covering the correct and incorrect ways of using a trademark for their employees and others, include General Motors, Monsanto Chemical Company, Westinghouse, Goodyear and others.

We quote from the Goodyear Trademark Manual a concise and excellent listing of the key points to look for in the selection of a good trademark. Here are these six easy-to-apply rules.

1. Is the trademark easy to read and speak?
2. Is it easily remembered?
3. Is it brief? Other companies have concluded from experience that a four- or five-letter trademark of two syllables is the best type of mark.
4. Is there any radio or TV difficulty with pronunciation?
5. Is it suitable for export use?
6. Is it descriptive of the product? Descriptive marks are of little value; it is difficult to procure registration and they are very seldom upheld by the courts. However, a suggestive mark may be valid.

glass containers move more drug products

Use **Anchorglass**® *containers sealed with* Anchor® *caps*

. . . because they protect your product purity

HOUSEWIVES prefer the glass package because the purity, strength and other qualities of the contents are fully protected. High in chemical durability, the glass container is inert to most products . . . cannot change them in any way. Moreover, housewives recognize it as the most sanitary package. It can be resealed tightly . . . unused portions are safely stored and protected indefinitely. Move more of your products and protect their purity in glass . . . in Anchorglass, sealed with dependable Anchor metal or molded closures.

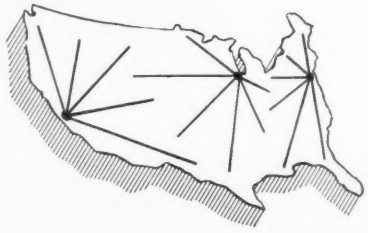
ANCHOR HOCKING
GLASS CORPORATION
Lancaster, Ohio

may be tomorrow's AEROSOL STAR!

It may be a cosmetic, pharmaceutical, chemical, food or specialty product. It may be a powder, liquid, or cream. It may be one of the regular products in your line. Perhaps it is an undeveloped formula or the mere "germ of an idea" in some person's mind. But the odds are that some product that is today unspectacular in its present package, may become one of tomorrow's fastest selling items when packaged as an *aerosol*.

Today in G. Barr & Company's laboratories, a continuing program of imaginative and persistent research is being carried on. All focused upon the development of new and better aerosol products and in further perfecting the Private Label aerosols we now manufacture.

We will be pleased to make available to you, the facilities and experience we have gained as America's leading Private Label Aerosol producers, to help you ascertain whether your idea, undeveloped formula or present product has an aerosol potential.



THREE
strategically located plants:
NEW YORK
CHICAGO
LOS ANGELES

G. BARR & COMPANY

3601 S. Racine Avenue • Chicago 9, Illinois

Colonial

adds the

Touch That Sells!

CUSTOMERS tell us that Colonial droppers and dropper assemblies often add the "selling touch" that sparks unit sales. Colonial's *eye appeal* becomes real *buy appeal* in today's hurry-up marketing picture. Spotless, fresh Colonial dropper assemblies are one of the intangibles that make package units click with consumers.

Remember, too—that the Colonial program of swift, accurate service and prompt delivery are operating fundamentals. Get full information from one of our sales representatives at left, or if you prefer, write or call direct.

CONTACT THESE COLONIAL REPRESENTATIVES

CHARLES E. SCHWAB
122 E. 42 St., New York 17, N. Y. - OXford 7-0760

HARRY M. GRABER
811 S. 53rd St., Philadelphia, Pa. - GRanite 6-6311

ALLEN J. GRETSCH
327 LaSALLE St., Chicago 4, Ill. - WAbash 2-1619

GABLER & GABLER
435 S. LaCienega Blvd., Los Angeles 48, Cal.
BRadshaw 2-2995

COLONIAL APPLICATOR CO.

VINELAND, NEW JERSEY

GENUINE GOLD... the classic symbol of elegance and refined taste... can be applied like any ceramic label or decoration... at a cost only slightly higher than common color. Screen printed on glass or ceramic surfaces, permanently fired to resist abrasion and corrosion, Hanovia 22 Karat liquid gold adds the vital "extra" to any sales program.

Take advantage of the eminence inherent in real gold printing or decoration on ceramics.

For more information contact your glass container supplier.

Hanovia

HANOVIA

CHEMICAL & MANUFACTURING COMPANY

1 West Central Avenue, East Newark, New Jersey

ENGELHARD INDUSTRIES

News in Packaging . . .

"Clinch Torque Tester"

Clinch quality evaluation of aerosol dispensers can be performed very rapidly by a device created in Continental Filling Corporation's Danville, Illinois research laboratory.

Continental's new "clinch torque tester" is a machine which determines the force necessary to twist the cap in the can opening. An indicator lever is attached to a clamp locked over the outside lip of the cap. The can is twisted manually. So long as the cap and can seal holds tight, the lever moves with them to give a spring balance torque reading in inch pounds. This reading is locked automatically when the cap twists in the opening.

Continental Filling Corporation research with the "clinch torque tester" indicates positive correlation between high torque readings and good sealing.

Hazel-Atlas Dallas Sales Mgr.

John O. Jones has been appointed district sales manager in Dallas for the Hazel-Atlas Glass Division of Continental Can Company, it has been announced by J. I. Donahue, general sales manager of the division.

Mr. Jones succeeds W. H. Marsh who retired from the district sales manager position because of ill health.

A new extruded acetate sample package containing six Mandelamine Hafgram capsules is being mailed to over 100,000 doctors by Nepera Laboratories Division of Warner-Lambert Pharmaceutical Company. The package is a miniature Tulox Container manufactured by Extruded Plastics, Inc. of Norwalk, Conn. Extruded from clear acetate with a yellow sealed-in base and slip-on cap, the package makes a handy, sanitary pocket container for one day's dosage of six to nine capsules. The complete mailing piece includes two of the plastic containers in a corrugated holder placed in a specially-prepared colored paper envelope; product literature is also enclosed. Tear-off pressure sensitive labels are applied to the containers enabling the doctor to remove them before handing out the sample or prescribing the drug to the patient.

Using four colors on a new tube designed by The Sheffield Tube Corp., The Shontex Company has given its hair and scalp conditioner a definite new look. Both box and collapsible tube carry the same design pattern, adding aquamarine and gold touches to the familiar blue and white combination Shontex has used for many years.

Continental Can Advanced Styling and Design Section

Continental Can Company will establish an advanced styling and design section. Karl Brocken, design consultant, has been commissioned to create the new section, which will be instituted first in the Hazel-Atlas Glass Division of the company. Advance planning will be conducted on glass jar and bottle design as well as the division's line of consumer products.

Robert Sanders, former design director of the Sinclair Glass Company, has been appointed director of the new advanced styling and design section.

Packaging Conference

"The Role of Packaging in Integrated Marketing" will be discussed by Dr. Dudley Maynard Phelps, president of the American Marketing Association, at a one-day conference on the same theme Oct. 23 at New York University.

Dr. Phelps, professor of marketing at the University of Michigan, will be one of the key speakers addressing marketing, sales, and advertising executives, and business and design consultants at the conference being co-sponsored by the Package Designers Council and NYU's Graduate School of Business Administration.

The program also will feature a panel discussion on "How Marketing Is Applied to Packaging" by package design consultants, marketing and management consultants, and marketing research authorities.

Breck Shampoo Color-Coded

Packages and bottle labels of John H. Breck, Inc. shampoos have been color-coded. Each package and label now carries an identifying letter superimposed on a specially designed color square.

A black letter "D" on a red square identifies Breck Shampoo for Dry Hair, a black "N" on a blue square, Normal Hair; and a black "O" on a yellow square, Oily Hair. Additional color coding is used on the top flap of each shampoo package, with the words "Dry Hair" in red, "Normal Hair" in blue and "Oily Hair" in yellow.

According to Edward J. Breck, president of the firm, color-coding was instituted to stress that there are three different Breck Shampoos and to make for ease of identification and selection by consumers and store personnel. The new color symbols will be featured in Breck consumer advertising starting in November.

Bayer Nasal Spray

Bayer Nasal Spray, first product since Bayer Aspirin to be marketed under the Bayer name by Sterling Drug Inc. is being introduced in the United States this month, according to an announcement by Stanley I. Clark, vice-president.

The new preparation was developed at the Sterling-Winthrop Research Institute. Its formula includes Neo-Synephrine and a cationic agent for deep penetration.

Bayer Nasal Spray comes in a plastic squeeze container of blue, or green, or brown—for immediate identification by the user.

An unusual new professional sample package for Eli Lilly and Company has been created by the Paper Package Company, also of Indianapolis. The package contains Mi-Cebrin (Vitamin-Mineral Supplement, Lilly). The package consists of a folder with a tear-off tab. This tab holds a two-piece pressure-formed plastic screw-type lid and base in which the pulvules are enclosed. This transparent purse or pocket container is made to close tolerances. Removed easily from the tab, it keeps the pulvules from shifting and gives the patient easy access as well as positive protection in pocket or purse.

Patent thoughts and trends

by Thomas Cifelli, Jr., PATENT ATTORNEY*

The highlights of the month are two recent patents covering new antibiotics, Neomycin and Carbomycin; a court decision of interest to those companies with close foreign associates on the question of how far such companies can go in protecting trademarked articles against resale; a new method of punch-card searching for drug patents; and a brief review of patent and trademark decisions rendered by the U.S. Supreme Court during its 1956 term.

Carbomycin

Tanner, Lees and Routien, three Chas. Pfizer inventors, recently obtained U.S. Patent 2,796,397 covering Carbomycin A and its production.

The new antibiotic is formed during the cultivation of a species of microorganisms known as *Streptomyces halstedii*. Carbomycin A is said to show high activity against a number of microorganisms and to be particularly noteworthy in its action on mycobacteria and gram positive microorganisms. The following table gives the antibiotic spectrum of Carbomycin A against a variety of gram negative and gram positive organisms.

	Growth, mcg./ml.	No Growth, mcg./ml.
Strep. faecalis	....	<.19
Brucella bronchiseptica	6.25	12.5
A. aerogenes 2	50	100
E. coli 21	100	....
Proteus Sp. 1	50	100
Ps. aeruginosa 173	50	100
M. albicans 8	100	....
E. typhosa 344	50	100
K. pneumoniae 132	50	100
S. paratyphi A 134	50	100
S. paratyphi B 139	50	100
Micrococcus pyogenes var. *aureus* 5	0.19	0.39
B. subtilis 219	0.39	0.78

These tests were run by seeding nutrient broth containing various concentrations of the pure antibiotic with the particular organism. The figures in the column marked "growth" indicate the highest concentration tested (in micrograms/milliliter) at which growth of the microorganism still occurred. The second column, "no growth," shows the minimum concentration used at which no growth of the microorganism occurred. The test was conducted under standardized conditions, the tubes being incubated for a standardized time.

*Richards and Cifelli. Newark, New Jersey.

The following table shows the activity of Carbomycin A against mycobacteria.

mcg./ml.	*ranae*	*phlei*	*smegmatis*	607	*berolinense*	*butyricum*
12.5	—	—	—	—	—	—
6.25	—	—	—	—	—	—
3.12	±	—	—	—	—	—
1.56	+	—	—	—	—	—
.78	+	±	—	±	—	±
.39	+	+	—	±	±	±
.19	+	+	±	+	±	+

Neomycin

The Nobel Prize winner, S. A. Waksman, just received U. S. Patent 2,799,-620, along with his co-inventor, H. A. Lechevalier, on the already well-known antibiotic, Neomycin and its process of preparation.

This antibiotic was first described by the inventors in the English publication, *Science, 109*, 305 (1949). Since the application which matured into the patent was not filed until June 29, 1956, one might assume that the application was filed too late to obtain a U. S. patent. However, the patent makes clear that the application on which the patent was issued was the fourth one filed, the first one having been filed away back in February of 1949, a line of continuity existing from the first to the fourth applications.

The patent contains a tremendous amount of technical information, running through some 20 columns and 4 sheets of figures. Some highlights are noted here.

Neomycin, like Carbomycin A, is produced from a species of streptomyces, namely, *Streptomyces fradiae*, dubbed Streptomyces No. 3535.

The antibiotic spectrum of crude neomycin, as compared to that of crude streptomycin and streptothricin, is given in the following table:

[Expressed in dilution units per gram of crude preparation required to inhibit growth of test organisms]

Organism	Neomycin ×1,000	Streptomycin ×1,000	Streptothricin ×1,000
1. *Bacillus subtilis*	150–750	125	125
2. *Bacillus mycoides*	20–150	20	<0.8
3. *Bacillus cereus*	20–60	30	<0.8
4. *Staphylococcus aureus*	100–250	15	50
5. *Sarcina lutea*	10	100	37.5
6. *Escherichia coli* SS	25	25	25
7. *Escherichia coli* RS	20	0	Active
8. *Pseudomonas aeruginosa*	2.5	1	<0.8
9. *Proteus vulgaris*	25	10	12.5
10. Bodenheimer's organism	15	0	Active
11. Serratia marcescens	20	25	1.2
12. *Mycobacterium tuberculosis hominis* 607 (SS)	80–250	Active	Active
13. *Mycobacterium tuberculosis hominis* 607 (RS)	50–150	Inactive	Active
14. *Mycobacterium avium*	50–150	Active	Active
15. *Mycobacterium ranae*	150	Active	Active
16. *Mycobacterium phlei*	300	100	12.5
17. *Trichophyton metagrophytes*	<0.3	<0.3	Active
18. *Cryptococcus albicans*	<0.3	<0.3	Active
19. *Penicillium notatum*	<0.3	<0.3	Active,

The symbol SS means a streptomycin-sensitive strain and RS means a streptomycin-resistant strain.

The inventors state that an especially significant feature of the spectrum of neomycin, distinguishing it from streptomycin, is its activity relative to organisms 7, 10 and 13. It is said that sensitivity of organisms 7 and 13 toward neomycin is of special utility as representing the capability of neomycin to control these streptomycin-resistant strains of bacteria. Also since organisms 12 and 13 are among those responsible for tuberculosis in human beings it appears that neomycin has a field of effectiveness against resistant strains to which streptomycin does not extend.

The following table gives comparative antibiotic spectra of neomycin and streptomycin:

[Expressed in amounts required to inhibit growth of organism.]

Organism	Neomycin (units/ml.)	Streptomycin (micrograms/ml.)
Aerobacter aerogenes	0.625	0.5–2.5
Bacillus anthracis	0.156	0.375
B. mycoides	0.1–0.5	0.1–3.8
B. subtilis	0.02–0.1	0.12–1.0
Brucella abortus	1.25–5.0	0.5–3.75
B. melitensis	0.625–2.5	0.5
B. suis	0.312–2.5	0.5
Clostridium perfringens	>10.0	>104
Corynebacterium diphtheriae	0.156	0.375–3.75
Escherichia coli	1.25–2.5	0.3–3.75
E. coli RS	1.5–5.0	>1,000
Hemophilus influenzae	1.25–2.5	1.56–5.0
H. pertussis	2.5	1.25–3.0
Klebsiella pneumoniae	0.312–0.625	0.625–8.0
K. pneumoniae RS	0.312	>1.000
Mallcomyces mallei	>10.0	10–>10.0
Mycobacterium avium	0.1–0.3	10
M. phlei	0.05–0.078	0.12
M. tuberculosis	<0.5	1.0–5.0
M. tuberculosis RS	<0.5	>100
Neisseria intracellularis	1.25–2.5	5.0
Pasteurella pestis	0.625	0.75–1.5
P. tularensis	0.156	0.15–0.3
Phytomonas pruni	0.1	0.25
Proteus vulgaris	1.25–2.5	0.4–3.0
Pseudomonas aeruginosa	12.5–25.0	2.5–25.0
Salmonella typhosa	0.1–0.625	1.0–37.5
S. schottmulleri	0.4–0.7	2.0
Sarcina lutea	2.5	0.25
Serratia marcescens	1.25	1.0
Shigella paradysenteriae	0.25–0.5	0.25–3.75
Staphylococcus aereus	0.156–0.625	0.5–>16.0
Streptococcus faecalis	5.0	50.0
Vibrio comma	2.5	6.0–37.5
Various fungi	10.0	>10.0

Trademark Aspects of International Enterprises

A case of special interest to those American companies having close foreign relations, and particularly to those companies in the perfume field, was recently decided by the U.S. District

It's slim . . . feminine . . . ideal for cosmetics!

It's Canco's 8-oz. "Queen Size" pressure container!

Any woman will appreciate this slim, graceful, easy-to-hold container. That's why it's perfect for cosmetics—hair sprays, lotions, creams and many others.

The "Queen Size" container is available with Canco's one-inch cup opening top, or an individually styled one-piece top. Either will accommodate a variety of valves and both are adaptable to all filling and closing equipment.

The Canco representative will gladly tell you more about this well-designed pressure container and others in Canco's line—the most complete line in the industry. Give him a call!

How Canco saves you up to 35% on your packaging costs

- Canco containers cost less initially, because they're mass-produced on standard can-making equipment.
- Canco offers all popular sizes: 3-oz., 4-oz., 6-oz., 8-oz., 12-oz., and 16-oz. Available with cup tops, *or with one-piece tops which simplify packing, cut costs.*
- Canco works directly with valve makers and contract loaders to give you the most efficient package at lowest cost.
- Canco's many plants assure you prompt service, uninterrupted production schedules.

COME TO CANCO FIRST! *American Can Company* *New York · Chicago · San Francisco*

Owens-Illinois Assures You A Complete Packaging Approach

Co-ordinated Research

Pure research into fabrication of glass, *packaging research* into processing and handling methods in customer plants, *market research* into consumer attitudes. All add up to greater packaging value.

Engineered Design

At Owens-Illinois, your package's *three* needs are taken into account: 1) Considerations of its function in the retail store, 2) its operating efficiency, and 3) its consumer utility.

The Right Container

Versatility of facilities and talents make O-I your best source of supply. In container development—beauty, utility, tradition are blended in the right proportions for your product's needs.

The Right Closure

Through long and continuing research O-I has developed the most advanced metal and plastic closures. Helping you choose the right closure is another function of O-I's packaging service.

Needed Fitments

O-I specialists are keenly aware of sales benefits derived from plastic shaker and pour-out fitments which are not "gadgets" but which increase consumer satisfaction with your product.

Merchandising Cartons

Modern cartons are developed only through systematic consideration of their opportunity to serve you in the retail store and warehouse . . . as well as on your own filling line and in transit.

Your special product is sure to get more attention in an attractive custom-container . . . designed by Owens-Illinois

The custom concept of fine packaging

HERE ARE TWO EXAMPLES of an Owens-Illinois specialty—*custom-container design.* For the right product, the distinctive product, there's no wiser merchandising buy!

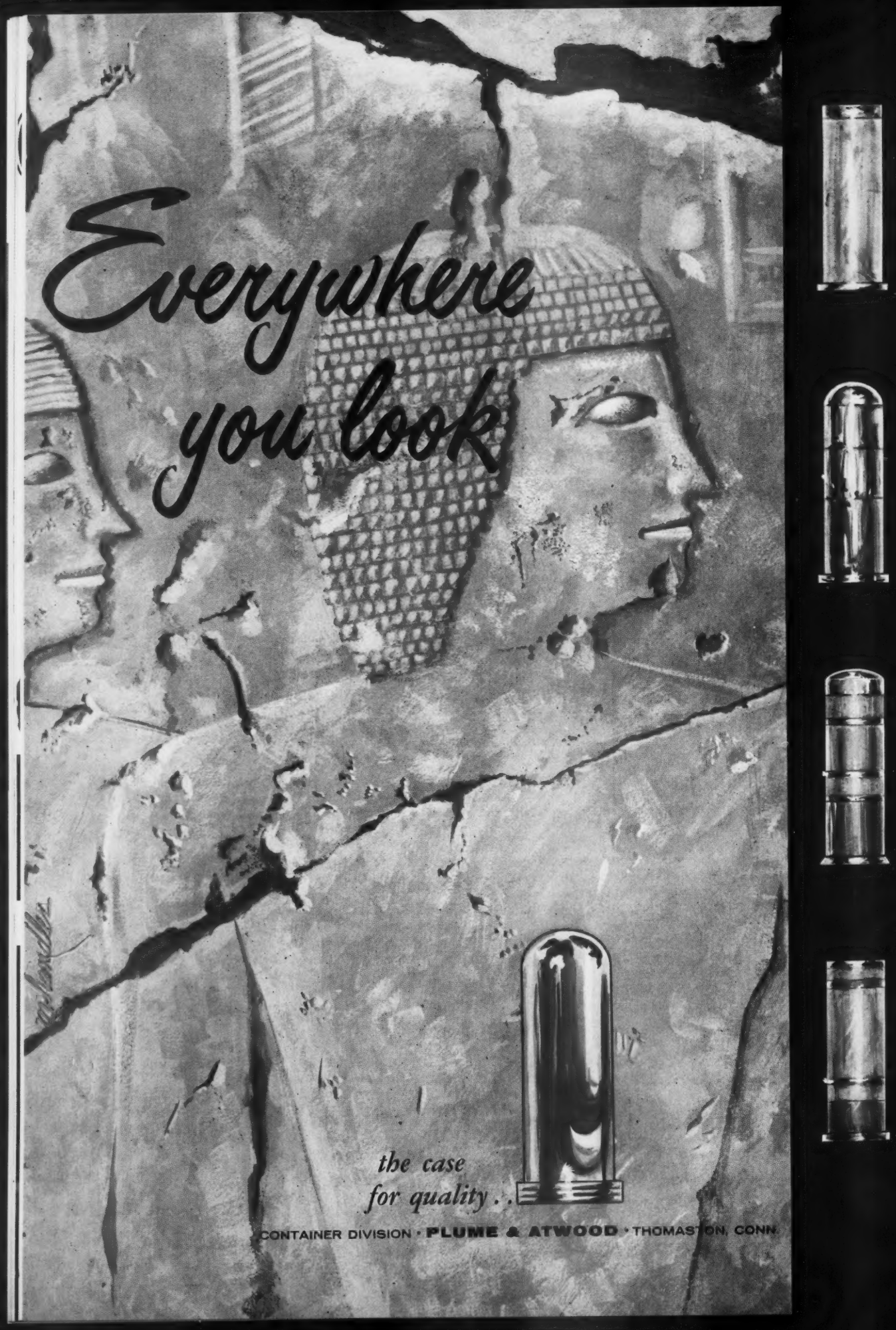
Designed for your product by Owens-Illinois, a custom container pays off in many ways. *More attractive,* it draws immediate attention to your product . . . *more distinctive,* it works toward positive buying action . . . *more functional,* it helps build repeat sales by protecting your product—by keeping it fresh—by making it always easy to use.

At Owens-Illinois, custom-container design is but one part of O-I's Complete Packaging Service. A large staff of experienced designers and packaging experts are ready to work with you in the development of your *complete* salespackage—stock or custom containers of all types, capacities and designs—label designs—special fitments—metal and plastic closures—proper closure liners—merchandising cartons. Everything you need for a successful salespackage!

For more information, call the Owens-Illinois branch office near you today.

DURAGLAS CONTAINERS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO


Everywhere
you look
the case
for quality . .
CONTAINER DIVISION · PLUME & ATWOOD · THOMASTON, CONN.

Court in New York City. That case involved three similar actions by the U.S. for violation of the Sherman Act, one of the so-called anti-trust acts, against Guerlain Inc., Parfums Corday, Inc. and Lanvin Parfums, Inc.

The bone of contention was whether the companies involved had the right to prevent importation of products bearing their registered trademarks without the written consent of the companies, under the terms of Section 526 of the Tariff Act of 1930. The position of the government was that the utilizatoin of this Section by the defendants is unwarranted and constitutes a violation of Section 2 of the Sherman Act by preventing the importation and reselling by others who purchased such goods from the respective affiliated French companies that form but the foreign part of a single international enterprise with the companies in question.

The companies depended upon the actual language of Section 526 which reads as follows:

"It shall be unlawful to import into the United States any merchandise of foreign manufacture if such merchandise, or the label, sign, print, package, wrapper, or receptacle, bears trademark owned by a citizen of, or by a corporation or association created or organized within, the United States and registered in the Patent Office by a person domiciled in the United States, under the provisions of sections 81 to 109 of Title 15, and if a copy of the certificate of registration of such trademark is filed with the Secretary of the Treasury, in the manner provided in section 106 of said Title 15, unless written consent of the owner of such trademark is produced at the time of making entry."

The facts as found by the Court were that each of the American companies is closely associated with a French company that originated the tradename, first marketed products under the trademarks and supplied the products manufactured under secret formulae

"sold by the American company, or the essential ingredients of those products. The Government alleges that, in each case, the American company and the French company constitute a single international enterprise. The toilet goods sold in the United States by the defendants are obtained from the French companies in packaged form ready for sale, or in bulk and bottled in the United States, or compounded in the United States by adding alcohol to the essences or concentrates obtained from the French company. These products are sold in the United States under trademarks identical with those used by the French company upon similar products, and the advertising emphasizes the prestige factor of origin with Parisian perfumers.

"In each case the French company has given to its associated American company an exclusive right to distribute its products in the United States and has transferred to the American company trademark rights intended to be sufficient to justify registration in the United States Patent Office on the basis of a claim of ownership by the American company. And each of the defendants has filed with the Bureau of Customs, United States Treasury, certificates of registration of certain trademarks for the purpose of preventing the competitive importation of products bearing those trademarks without the written consent of the American registrant, under the terms of Section 526 of the Tariff Act of 1930."

Judge Edelstein agreed with the government in finding that the companies and their French counterparts had constituted but a single international enterprise. The Court further found that the American part of that enterprise may not exclude the competitive importation of the trademarked products sold abroad by the French part of the enterprise, inasmuch as the public would not be deceived about of the authenticity or origin of the products and therefore the reputation of the trademark owner could not suffer from the marketing of inferior merchandise under his mark. Then, the Court, having found that the companies could not exclude the importation of the trademarked products under the Tariff Act, went on to find that the companies were guilty of monopolistic practices and violations of Section 2 of the Sherman Act.

Punch-Card Method for Making Searches of Patents in Drug Field

An attempt is being made to learn whether modern business methods can be applied to the job of searching patents in the U.S. Patent Office. A test has been made in the drug field.

According to information from the U.S. Patents Quarterly, the first test was a success. It appears that the examination time has been cut 80 per cent.

The new method was used to help Examiners determine whether patents could be granted to 64 patent applications involving steroids. This required the inspection of more than 2,000 existing patents to uncover any subject matter related to the pending applications. Results showed that one Examiner could do the work of five in the same period of time, and with a higher degree of accuracy.

On the basis of this successful operation, the Patent Office has proposed to officials of the American Drug Manufacturers Association that industry, together with interested organizations, individuals, universities, and libraries cooperate to expand the file of cards to include steroid material from all technical publications. Data would be analyzed, coded, and punched into the master file along with the patent information already there. Anyone needing the information could obtain the entire file at the nominal cost of reproducing the punched cards.

Robert C. Watson, Commissioner of Patents, and Dr. Karl Bambach, Executive Vice President of ADMA, have urged that those most interested cooperate on the project in view of the continuing large expansion of the steroid chemistry field.

An ADMA committee will be appointed to consider industrial phases of the project and to meet with Patent Office representative in September at the American Chemical Society's New York conference. Any other industry or organization interested in attending or taking part may contact the Patent Office or ADMA.

Patent and Trademark Cases Decided by U. S. Supreme Court During 1956 Term

As summarized by the U.S. Patents Quarterly, action taken by the U.S. Supreme Court in patent and trademark cases during the 1956 term and the present set-up of cases in this field for the 1957 term follow:

The Court, at its 1956 Term, decided two cases by opinion and denied certiorari in 34 cases. The cases decided by opinion were U.S. Gypsum Co. v. National Gypsum Co., 112 USPQ 340, and Fourco Glass Co. v. Transmirra Products Corp., 113 USPQ 234.

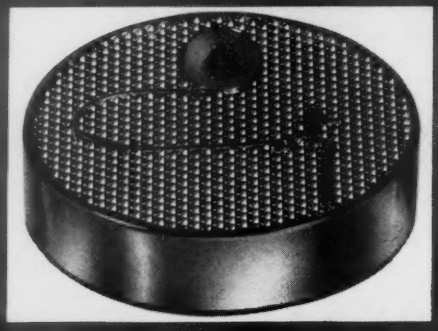
The Gypsum case held that, although a licensor may not recover royalties under illegal licensing agreements, it may recover on quantum meruit or for infringement for period after misuse of patents has ceased and the effects of such misuse have been dissipated.

(*Continued on page 402*)

and now the NEW *Gem-cut*

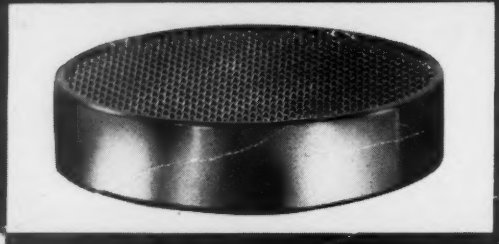
GOLDCOTE PLASTIC CAPS WITH INLAID BASKET WEAVE DESIGN

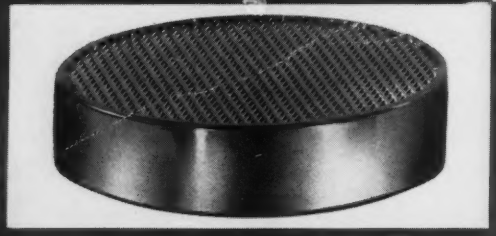
luxurious additions to RICHFORD'S complete line of Closures for Bottles and jars —*at no increase in price over plain caps.*

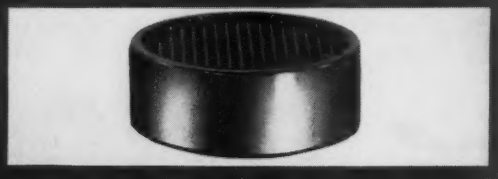


Glittering, gem-like, these new caps add value to your product — transform plain bottles or jars into products of beauty.

And on special order, you may obtain them with your crest, trademark or special art work added. Sizes ready for 33 mm., 48 mm., and 58 mm. necks.







Packaging experts have called them the most exciting new caps in years — write now for samples and prices.

RICHFORD
CORPORATION

OFFICE & PLANT: 3618 OCEANSIDE RD., OCEANSIDE, N. Y.
SHOW ROOMS: 350 FIFTH AVE., NEW YORK

HERE'S OUR NUMBER 369, the perennial favorite of those who package in glass. Universal in appeal, versatile in application, this handsome bottle has proved its merit time after time.

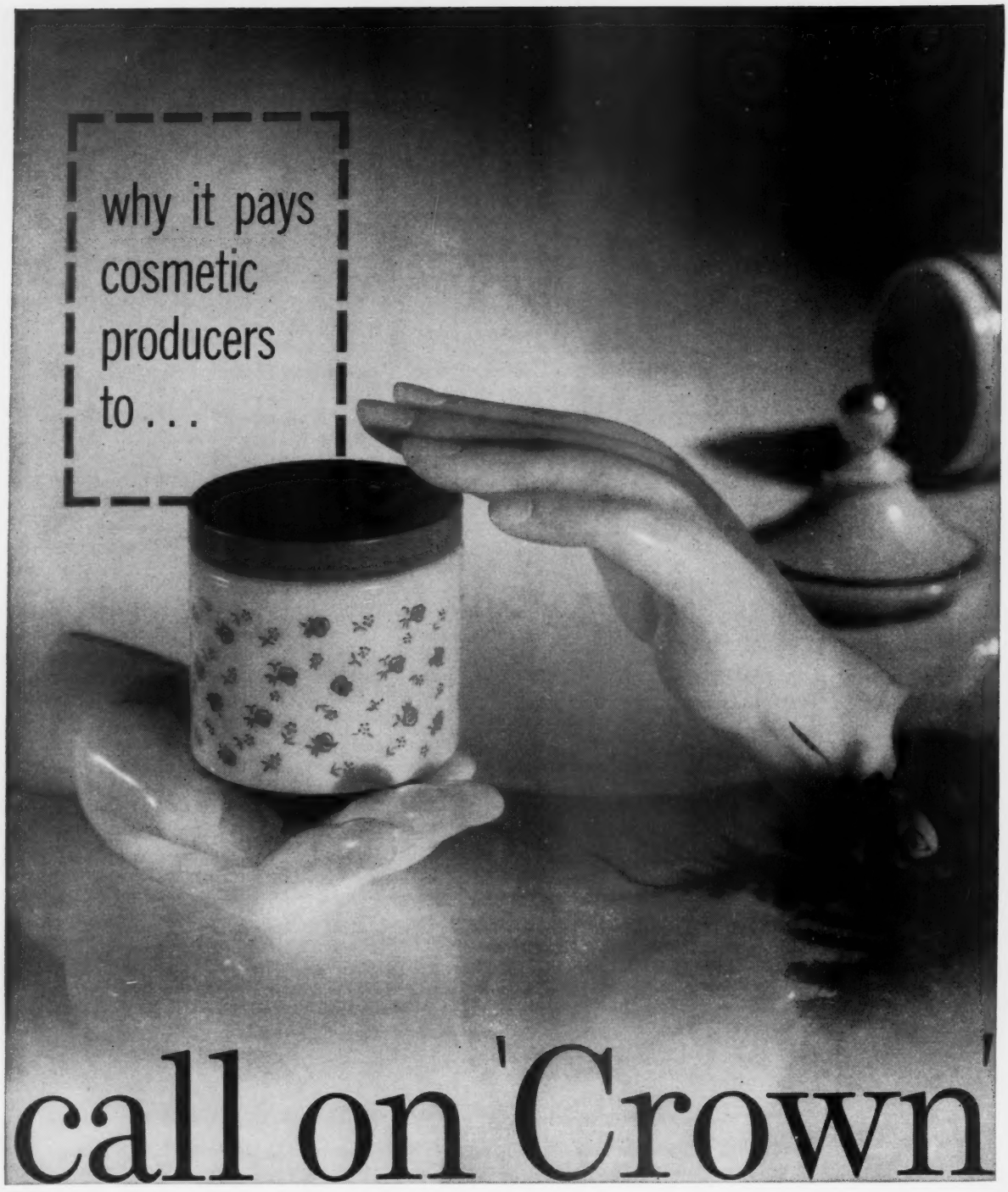
Use it for cologne, toilet water, lotion, after-shave or what you will . . . you just can't find a more suitable container. Made in ½, 1, 2, 3, 4, 6 and 8 ounce sizes and labeled or decorated to your specifications.

GLASS STIMULATES SALES

CARR-LOWREY GLASS CO.

Designers and manufacturers of fine glass containers

Factory and Main Office: BALTIMORE 3, MD. • *New York Office:* 415 MADISON AVE. • *Chicago Office:* 1572 MERCHANDISE MART



Meritseal provides a special touch of packaging glamour for your prestige cosmetic products. This distinctive cap, with its sparkling "show-case lithography" sets your product apart from the rest . . . captures the attention of the cosmetic buyers . . . creates the spark that results in sales.

And Meritseal has more than beauty. This closure is made of special rolled steel and has a die-stamped, precision made thread. This assures smooth, fast application on the production line . . . gives rigidity that eliminates expansion, contraction and cracking . . . prevents the outer shell from spinning . . . and provides easy removal and re-closing in the consumer's hands.

Meritseal has the answer for sizes, too. It is made in a very complete range from 33 to 100 mm. You can choose from a variety of liners, and they are all "locked-in" the cap by the special Meritseal construction.

CROWN CORK & SEAL COMPANY, INC., BALTIMORE 3, MARYLAND

If You Sell from a Grab bag...

. . then you've really got the packaging problem licked. When the customer reaches blindly in, she's stuck with whatever her hand pulls out of the bag. Maybe that's why grab-bag sales have shown a notable tendency to decrease in recent years.

Fortunately for everyone, most sales today are made in brilliantly lighted stores, with the customer making her choice from well-displayed groupings of competitive products. She has plenty of time to select the brand that will best satisfy every wish she has for that product.

Imco squeeze bottles add use appeal . . . safety appeal . . . and eye appeal to every product they contain. So to pull your product out of the grab-bag class and into *the choice* class of present day merchandising . . . let Imco help you design a container that will fit your needs at the point of sale . . . and in use.

IMCO BOTTLES CARRY FLEXCEL THIS TRADEMARK

IMCO CONTAINER CORPORATION

Empire State Building, Room 6204
350 5th Ave., New York, N.Y.

27-67 Vine Avenue
Toronto, Ontario, Canada

75th & Cleveland
Kansas City, Mo.

Palmolive Bldg., 919 N. Michigan Ave.
Chicago, Illinois

608 McCall Bldg.
Memphis, Tenn.

4515 Olive St.
St. Louis, Mo.

5957 South Western Ave.
Los Angeles, Calif.

FLUID

shows the quality difference with laboratory controlled packaging!

To measure a top-notch contract packager, not only are production facilities important but even more vital are laboratory facilities and experienced personnel on which quality control depends.

At Fluid you get full **Laboratory** Controlled Packaging. In our extensive laboratory with the latest equipment and skilled specialists, your aerosol, liquid, and plastic tube filling are completely safeguarded.

Picture Fluid's Laboratory for your own product research, production, and packaging . . . you'll see why more and more companies use Fluid's Controlled Packaging . . . it is competitively priced for real economy.

1. **PERSONNEL** skilled and experienced in handling development and production problems.
2. **FACILITIES** that are not surpassed by anyone in the contract packaging field.
3. **EQUIPMENT** for quality control checks every step of the way from product development through packaging.

"First in Contract Packaging"

FLUID

CHEMICAL CO., INC.
FOUNDED 1921

Services: Aerosols in glass and metal. Liquid filling in metal, glass, and plastic containers. Product Research and Development.

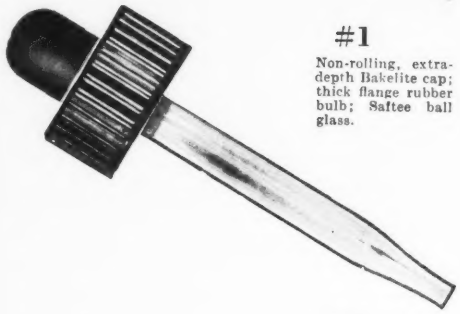
New Perfection

DROPPING PARTS

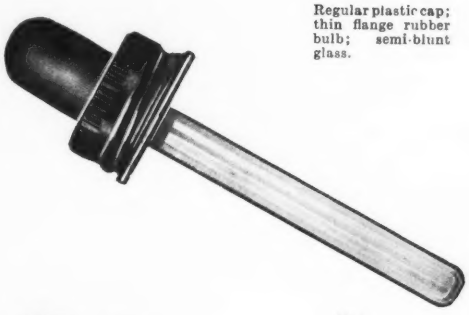
"Repeat-Sale Insurance" for Liquid Preparations

The New Perfection line of functionally designed dropping parts gives satisfaction where satisfaction counts—in the hands of the user. To make sure the customer's first reaction to your product is 100% favorable, specify New Perfection. Our rigid inspection system assures the cleanliness and uniform high quality of every shipment.

New Perfection dropping parts will fit your bottle or can be furnished in combination with our Modernistic bottles in Amber, Blue, Green or Clear glass. Bottle sizes—1/8, 1/4, 1/2, 1 and 2 oz.



#1
Non-rolling, extra-depth Bakelite cap; thick flange rubber bulb; Saftee ball glass.



#3
Regular plastic cap; thin flange rubber bulb; semi-blunt glass.

#4
Metal cap; oil-resisting Amekine synthetic rubber bulb; blunt glass.

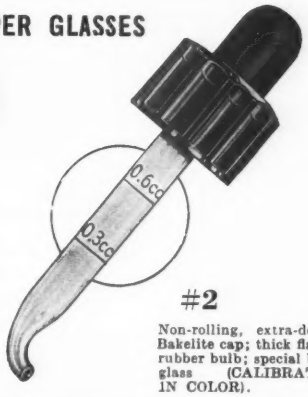
#5
Small size plastic cap; midget rubber bulb; regular straight glass.

NEW PERFECTION DROPPER GLASSES

CALIBRATED

IN COLOR

This inexpensive extra adds welcome convenience to the use of your product. Accurate calibration in any color marks the specific dosage indicated. Your firm name or trade-mark may also be imprinted.



#2
Non-rolling, extra-depth Bakelite cap; thick flange rubber bulb; special bent glass (CALIBRATED IN COLOR).

Improved bottle shape. Designed to lie flat for convenient labeling. Front provides ample label space.

IN ADDITION to NATURAL RUBBER BULBS for GENERAL USES, WE CAN ALSO SUPPLY

AMEKINE (OIL-RESISTING) Synthetic Rubber Bulbs

which are recommended for use with oil preparations, such as nose and ear drops and vitamin products. Even after long exposure to oil, Amekine closely retains its original shape and functions perfectly.

PENNSYLVANIA
GLASS PRODUCTS CO. INC.

"Glass Goods of the Better Kind"

430 N. CRAIG ST. • PITTSBURGH (13), PA., U.S.A.

van Ameringen-Haebler, Inc.

In Skillful Hands

The true beauty of a successful fragrance depends not only on artistic abilities and technical skills, but also on a knowledge of markets, consumer preferences and the psychology of scent.

With these abilities, the staff of VAH can be helpful to you in the development of your next perfume need.

VAH products are fully tested for their ultimate use. Here the hands of a laboratory technician produce a pressed face powder cake in which a new fragrance is being tested in the VAH Cosmetic Service Laboratory.

521 WEST 57th STREET • NEW YORK 19, NEW YORK

van Ameringen-Haebler, S.A.R.L.

147, RUE J. P. TIMBAUD • COURBEVOIE, SEINE, FRANCE

NEWS...

Colgate T. A. Marketing Dir.

Robert E. Hilbrant has been appointed director of marketing for the Toilet Articles Division of Colgate-Palmolive Company, according to C. G. Grace, vice-president in charge of the division.

As vice-president and director of marketing, Mr. Hilbrant will have the responsibility of supervising and coordinating all of the division's marketing activities, with the general product manager, the general sales manager, and the manager of market research reporting directly to him.

Rabe Joins Roerig

Charles C. Rabe has assumed the newly created post of manager of special projects for J. B. Roerig and Company. Mr. Rabe formerly headed the pharmacy administration department at St. Louis College of Pharmacy and for the last three years was assistant to the secretary of the American Pharmaceutical Association in Washington.

Vice Chairman of Vick

Marion W. Smith has been elected vice-chairman of the Vick Chemical Company board of directors.

Mr. Smith joined Vick in 1935 as an attorney and assistant secretary. After serving in many management capacities, he became a member of the board of directors and a vice-president in 1945. Since 1949 Mr. Smith has been president of J. T. Baker Chemical Company, a Vick subsidiary.

MARION W. SMITH

Elect Morgens P&G Pres.

The U.S. Senate having confirmed President Eisenhower's nomination of Neil McElroy, president of Procter & Gamble Company, to succeed Charles E. Wilson as Secretary of Defense, the Procter & Gamble board of directors on Aug. 22 elected Howard J. Morgens, executive vice-president of the firm, to succeed Mr. McElroy as P&G president. Mr. Morgens will assume his new office Oct. 1 when Mr. McElroy's resignation becomes effective.

Prior to his election as president, Mr. Morgens, 46, served nine years as vice-president including three as executive vice president in charge of the larger portion of the company's operations in the United States.

Mr. Morgens joined Procter & Gamble as a salesman in 1933, after receiving his degree of Master of Business Administration from the Harvard Graduate School of Business Administration. He had graduated from Washington University with the degree of Bachelor of Arts in 1931.

HOWARD J. MORGENS

In 1934 he transferred to the brand promotion section of the advertising department and in 1946, after advancing through advertising and promotion work, was named manager of the advertising department. The same year he was made a member of the company's Administrative Committee. In 1948 he was made vice-president in charge of advertising and two years later was named a member of the board of directors.

Squibb Branch Mgr. Changes

Bruce M. Wood, former manager of the E. R. Squibb & Sons Minneapolis branch has been appointed manager of the St. Louis branch. Replacing Mr. Wood in the Minneapolis branch is August P. Dorflinger, who had been assigned to the Atlanta branch office.

DR. J. J. VAN GASSE

Van Gasse Promoted

Dr. Jerome J. Van Gasse has been appointed assistant general manager of Pfizer Laboratories, division of Chas. Pfizer & Co., Inc., it has been announced by Thomas J. Winn, vice-president.

Formerly medical director of Pfizer's J. B. Roerig and Company division, Dr. Van Gasse will have direct responsibility for all operations of Pfizer Laboratories under Mr. Winn's supervision as general manager.

Dr. Van Gasse was director of the Department of Public Health in Jackson, Mich., prior to joining Roerig. He also held the post of assistant collaborating epidemiologist of the U. S. Public Health Service and served as Director of the Alcoholism Information Center in Jackson.

Mead Johnson de Mexico Opens

Officials of the Mexican government and health department, leading representatives of the Mexican medical profession and executives from the parent company were present August 28 when Mead Johnson de Mexico, S. A., Mexican subsidiary of Mead Johnson & Company, officially opened its new modern offices, plant and warehouse in Mexico City.

Situated on a 10-acre site, the new Mead Johnson installation is constructed of brick and native stone and is of highly functional, modern design. The manufacturing facilities, control laboratory and warehouse area are located under one roof in a building directly in the rear of the new travertine marble general office building. The facility is located on the Calzada de Tlalpan expressway in the rapidly growing southern section of the city.

Bundy Vice-President

Dr. Robert S. Justice, director of laboratories, has been elected a vice-president of the C. M. Bundy Company.

VALUABLE CONTENTS DEMAND THE FINEST IN PROTECTIVE PACKAGING

Manufacturers of all types of tin, tin-coated, aluminum, lead, and Sheffalloy tubes. To give your product a container that is safe, sanitary, lightweight, smart and convenient —specify SHEFFIELD. It pays to use the best.

Product of The Sheffield Tube Corporation
Established 1850...Finer packaging from a century of experience
Home Offices and Factory New London, Connecticut
Sales Offices • New York • Chicago • Los Angeles

SHEFFIELD TUBES

VERSATILITY

You can now obtain from Scovill without payment of fitting-up charges, several styles of either refillable or conventional type perfume pursers in a variety of metals and finishes. Or special variations of the basic containers can be worked out to your specifications. The versatile new refillable cases can accommodate a series of your different fragrances each in its individual refill unit to suit the consumer's whims of the moment... or they accept new refills of one particular fragrance without the messiness and loss of perfume associated with the usual "refillable" container. For distinctive cosmetic container work of all kinds consult: Scovill Manufacturing Company, Drug and Cosmetic Container Division, 99 Mill St., Waterbury, Conn.

SCOVILL Containers

PATENTS PENDING

Mead Johnson Appoints

Dr. Coy W. Waller has been appointed director of chemical research and Edwin H. Vause has been named director of laboratory administration in the Mead Johnson & Company Research Division, Dr. Ben King Harned, Mead Johnson vice-president for Research, has announced.

Dr. Waller will direct and coordinate all activities of the newly created Chemical Research Division. Creation of the new division continues the company's expanding search for new pharmaceutical and nutritional specialties.

While employed by Lederle Laboratories, Dr. Waller was instrumental in synthesizing the now well-known vitamin, folic acid. He also determined the chemical structure of Aureomycin, one of the first broad spectrum antibiotics.

Dr. Harned said appointment of Mr. Vause stemmed from a general reorganization of the division's administrative staff to handle an increasing work volume created by expanding research activities.

Mr. Vause was previously employed by Standard Oil Company of Indiana at its Whiting facility.

Johnson Elected Vick V.P.

Dr. Hal H. Johnson has been elected a vice president of the Vick Chemical Company.

Dr. Johnson joined Monsanto Chemical Company in 1946 as a member of the organic chemicals development department and rose to the position of director of general development in the company's Research and Engineering Division.

On Jan. 1, 1957, Dr. Johnson was appointed Director of The Chemical and Rubber Division of The Business and Defense Services Administration, U. S. Department of Commerce, on loan from Monsanto.

DONALD K. BALLMAN

Lawrence H. Zahn, right, manager of methods & package development division at Ciba Pharmaceutical Products Inc., receives an American Flag from the Capitol in recognition of his services with the Business and Defense Services Administration of the Department of Commerce. Left to right are: H. B. McCoy, Administrator of the BDSA; Frederick H. Mueller, Assistant Secretary of Commerce for Domestic Affairs; Congresswoman Florence P. Dwyer. Presentation was made in Washington prior to Mr. Zahn's return to his position with Ciba after having completed his six month's tour of duty with the BDSA as Deputy Director of the Containers & Packaging Division. He has been placed in a consulting capacity to the Government and been designated as an Executive Reservist by Secretary of Commerce Sinclair Weeks.

Morris Rejoins B-M

Edmund W. Morris has joined Bristol-Myers Products Division as manager, product development, according to an announcement by J. J. Clarey, vice-president in charge of the Product Planning Division. Mr. Morris, formerly associated with Bristol-Myers in an advertising capacity, has been for the past year with Lever Brothers Company in similar work.

Appointed by S, K & F

E. Lee Bullington has been appointed hospital sales service field manager for Smith, Kline & French Laboratories.

Replacing Mr. Bullington as Eastern region hospital service manager is W. Brian McLarnon.

WILLIAM R. DIXON

Roerig Medical Director

Dr. Martin A. Seidell, an internist and neurologist, has assumed the post of medical director of J. B. Roerig and Company. Dr. Seidell, who practiced for two years at the Mayo Clinic in Rochester, Minn., succeeds Dr. Jerome J. Van Gasse, who has been appointed assistant general manager of Pfizer Laboratories in Brooklyn.

Marriner Succeeds Starrett

Donald E. Marriner sales representative for Monsanto Chemical Company's Organic Chemicals Division, has been appointed sales manager of fine chemicals for the division. Mr. Marriner will move to St. Louis in his new post where he succeeds James W. Starrett Jr. who has been named sales manager of agricultural chemicals for the division.

Dow Director of Sales

Donald K. Ballman, general sales manager of The Dow Chemical Company since 1949, has been promoted to director of sales, succeeding Donald Williams who recently was appointed director of corporate relations, Leland I. Doan, president, has announced.

Mr. Ballman has announced the promotion of William R. Dixon to general sales manager. Mr. Dixon has served as assistant general sales manager since 1951.

"SOFTEN" HER WITH SILICONES

The word *silicones* on today's label turns lookers into buyers. And the water-resistant silicones in the container help turn buyers into good "lookers." Not an active ingredient in cosmetics, Dow Corning Silicone Fluids prevent water-borne irritants from penetrating the skin. They make creams and sun-tan lotions stay put, less sticky, smoother and easier to spread. In hair treatments, silicones keep hair in place—give it a softer look and feel. Dow Corning's active chemical research program has resulted in superior silicone fluids carefully tailored for use in all types of cosmetic preparations. Available in every practical viscosity, Dow Corning Silicone Fluids are carefully quality-controlled. They're physiologically and chemically inert, odorless, and form excellent carriers for active ingredients.

Free samples, technical data and advice on using Dow Corning Silicone Fluids as cosmetic ingredients, are readily available from the technical representatives in our nearest branch office.

first in silicones

Dow Corning CORPORATION
MIDLAND, MICHIGAN

ATLANTA • BOSTON • CHICAGO • CLEVELAND • DALLAS • DETROIT • LOS ANGELES • NEW YORK • WASHINGTON, D. C.

First B-M Regional Office

The Bristol-Myers Products Division has opened its first regional office and its eighth sales division office, both with headquarters in Kansas City, it has been announced by E. Lloyd Bernegger, executive vice-president and director of sales.

The newly created Western Region headed by Robert O. Slaughter will include the Southwestern, Midwestern, Western and West Central Sales Divisions. The West Central Sales Division, just created, will be headed by Robert R. Alexander.

C. Ph. A. Honors Bender

The Canadian Pharmaceutical Association has presented George A. Bender with a life membership in honor of his editorship of "A History Of Pharmacy In Pictures," the 40 oil paintings commissioned by Parke-Davis to trace the evolution of pharmacy.

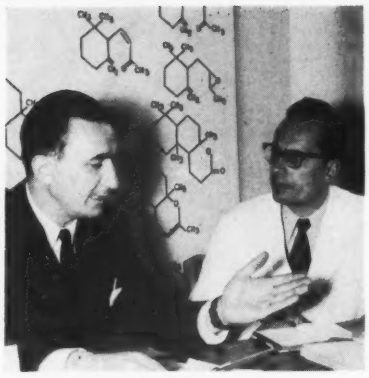
The presentation was made by E. D. Hines, retiring president of the C.Ph.A., at the organization's 50th anniversary convention held recently in Montreal. Approximately 800 persons viewed the original oils at the first Canadian exhibition of them in the Sheraton-Mt. Royal Hotel.

Mr. Bender also was honored with life memberships in the New Brunswick and Saskatchewan pharmaceutical associations. He is retail promotion manager for Parke-Davis and editor of its "Modern Pharmacy" magazine.

Roche Labs Promotes Huck

Roche Laboratories has announced the promotion of John Lloyd Huck Jr., to director of product development. Mr. Huck joined Hoffmann-La Roche Inc. in 1946 as a junior research chemist; he became a representative in 1948 and was appointed director of sales education in 1951; since 1953 he has served as assistant general sales manager.

ARTHUR C. GOGARTY



Dr. Henry Gribou of Dragoco, New York, discusses new specialties with Dr. Guenther Ohloff of Dragoco, Holzminden during the recent visit by Dr. Gribou to the Dragoco home office and plant.

Zonite Renamed Dunbar

To facilitate marketing of new and diversified products being added to its line in the near future, the Zonite Division of Chemway Corporation has been renamed Dunbar Laboratories, it has been announced by William L. Russell, division president.

James T. Urban, formerly the syndicate and department store sales manager for Helene Curtis Sales, Inc., has been appointed to the position of sales manager for Dunbar Laboratories.

Walker Joins Harvey Co.

Harlow C. A. Walker, formerly director of sales training for Bristol Laboratories Inc., has been appointed sales and advertising manager of the G. F. Harvey Company.

Appointed by Merrell

Dr. M. A. Chambers has been named professional service manager of The Wm. S. Merrell Company.

Risdon Suing V C A, Inc.

The Risdon Manufacturing Company Naugatuck, Conn., has filed suit against V C A, Inc., in the U. S. District Court in Connecticut. Infringement by V C A, Inc. of Risdon's "Micro-Mist" aerosol spray nozzle patent No. 2,767,023 is charged.

Gogarty Back from France

Arthur C. Gogarty, sales manager of Tombarel Products Corporation, recently returned from a three-week visit to Tombarel Freres, S. A., Grasse, France, where he studied the new crop of lavender.

Robert W. Gilvey has been appointed to the sales staff of Tombarel Products.

Dr. Roth Joins Winthrop

Catherine H. Roth, M.D., has been appointed associate medical director of Winthrop Laboratories, Dr. E. J. Foley, vice-president and medical director, has announced.

Prior to joining Winthrop, Dr. Roth was in charge of medical educational services and medical advertising for Merck, Sharp & Dohme, International. She was previously associated with Armour Laboratories as assistant medical director; with Nopco Chemical Company as medical director; and as medical director of Murray Breese Associates.

Dr. Roth also served as associate editor of Medical Woman's Journal and is the editor of a book on cardiovascular diseases. She received an award from the Society for the Prevention of Blindness for an essay in this field. She has lectured at medical schools and hospitals in the United States and abroad.

Pennsalt Canadian Subsidiary

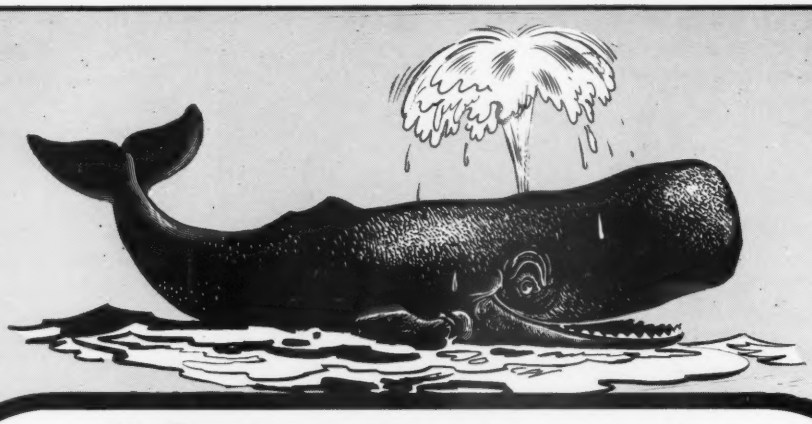
Pennsalt Chemicals Corporation has announced the formation of a wholly owned subsidiary in Canada, to be known as Pennsalt Chemicals of Canada, Ltd.

William B. Billingsley, who has directed Pennsalt specialty sales in Canada since 1954, has been named vice-president of the new subsidiary and resident manager of its operations. Before joining Pennsalt, Mr. Billingsley was associated with Canadian Industries, Ltd.

Hooker Northwest Sales Rep

H. McIntosh Beatty Jr., has been appointed a sales representative in the Northwest for Hooker Electrochemical Co., Tacoma, Wash., it has been announced by Horace W. Hooker Jr., Western sales manager. Mr. Beatty will sell the Hooker chemicals manufactured at Tacoma as well as some of those made at the Niagara Falls headquarters plant.

ROBERT W. GILVEY



"let us spray"

Our massive friend pictured above, sprayed in a big way long before the birth of another giant, the modern aerosol industry.

American Cholesterol Products, Inc. is proud to have contributed to the whale of a growth of this colossus by developing unique and widely used non-irritating, hypo-allergenic lanolin derivatives, chemically designed for aerosols.

ACETULAN™ offers unlimited possibilities for new effects in aerosol formulations. It is a stable, 100% active, water-thin, liquid derivative of acetylated lanolin alcohols. Acetulan was literally made to order for aerosols. It has proven its value in actual practice in many types of aerosol products where it acts not only as a plasticizer and co-solvent for various components, but also as a penetrant, emollient, and protective agent for skin and hair. It is an excellent plasticizer for PVP and related compounds and is soluble in and acts as a solvent for most waxes, oils, propellants and alcohols. Valve clogging, solubilization difficulties and material incompatibilities are practically eliminated in the aerosol products formulated with Acetulan. Only ½% to 3% of Acetulan is sufficient to impart its desirable properties to skin and hair.

MODULAN® is the acetyl derivative of pure lanolin with superior solubility, emollient and super-fatting properties.* It is practically odorless and non-tacky imparting soft waxy protective films to skin and hair. Small percentages of Modulan included in aerosol shave, shampoo, sunburn, and hand cream formulations, result in marked conditioning effects.

SOLULAN 98™ is a new, decidedly different polyoxyethylene derivative of lanolin. It is a 100% active, anhydrous, clear liquid product with complete solubility in water and alcohol in all percentages. The unique character of this lanolin derivative is obtained by balancing hydrophylic polyoxyethylene with hydrophobic acetyl groups. The result is persistent emollient films, and unusual solubilizing properties which lend themselves to the creation of entirely new effects in aerosol formulations. Try Solulan 98 for that difficult solubilization problem whether you wish to solubilize water or oil soluble materials. Its versatility, ease of incorporation and beneficial effects will surprise you.

AMERCHOLS® The Amerchols, particularly the low viscosity, liquid multi-sterol Amerchol L-101, are widely used in aerosols. These products, which represent lanolin cholesterols in their most active form, are excellent plasticizers for PVP films and have the multiple advantages of being unusual emollients, penetrants, and non-ionic, surface-active agents which are safe for the most delicate tissues. The Amerchols have been used for many years in all types of cosmetics and pharmaceuticals and are among the first lanolin derivatives to be used in modern aerosols. Many emulsion aerosol formulations contain Amerchols which impart to these products the same beneficial characteristics for which they are noted in non-propelled products.

RICILAN A™—Another exclusive development of American Cholesterol Products, Inc. Ricilan A is a viscous liquid wax synthesized from components of lanolin and castor oil. It is a stable, almost odorless, polymeric ester with properties which make it intriguing to the cosmetic and pharmaceutical chemist. Ricilan A is both alcohol and mineral oil soluble and imparts an emollient 'feel' to skin and hair which is unlike anything hitherto. It is a natural for aerosols.

Write to our research laboratories for literature, references, suggested formulas and samples.

*U. S. Patent No. 2,725,334

AMERICAN CHOLESTEROL PRODUCTS, INC. AMERCHOL

American Cholesterol Products

• INCORPORATED •

AMERCHOL PARK EDISON, NEW JERSEY

HARRY O. STARK

FREDERICK A. TILSTON

New Roche Vitamin Div. Post

Appointed manager of pharmaceutical sales, a newly created post in the Vitamin Division of Hoffmann-La Roche Inc., is Harry O. Stark, who will devote his time wholly to Roche bulk vitamin sales to the drug industry, it has been announced by Paul J. Cardinal, vice-president in charge of the division. Mr. Cardinal and Robert W. Smith, sales manager, have pointed out that the Roche Vitamin Division last year concentrated operations in the food field under a special markets manager, to which responsibilities Ralph C. Christiansen, then manager of sales to the margarine industry, was promoted. Mr. Stark, like Mr. Christiansen, will coordinate his activities with those of the local Vitamin Division salesmen and the Nutley technical staff.

Upon returning home from the Pacific War Theatre, where he saw service as an executive officer in the U.S. Navy, Mr. Stark joined the Calco Chemical Division of American Cyanamid in 1945 and held various responsibilities, including that of domestic sales manager. He later joined Cyanamid's Fine Chemicals Division.

Promoted by Emery

Frank E. Eden, since 1953 a member of the control laboratory of Emery Inductries, Inc., has been promoted to the staff of the development and service department, W. T. Meinert, director of development and service, has announced.

Mr. Eden will be concerned with the market development of new chemical products, as well as with technical service for Emery's lines of fatty acids, fatty esters, organic acids, lubricant esters, and plasticizers.

Bard Names Benjamin

Charles J. Benjamin Jr. has been named assistant to the president of Bard Pharmaceuticals, Inc.

Stokes New Eng. Sales Rep

Howard Gamble has been appointed to the New England field sales staff of the Press Division of F. J. Stokes Corporation, according to an announcement by Samuel H. Greenwood Jr., manager of the division. Mr. Gamble will work out of Stokes' New England district office in Portland, Conn.

Joins Mead Johnson

Dr. Byron B. Clark, former professor and head of the Department of Pharmacology at Tufts University school of medicine, has been appointed director of pharmacology in the Research Division of Mead Johnson & Company.

N. A. Myers Retires

N. A. Myers has retired after almost 38 years as salesman for The Upjohn Company.

Tilston Heads Sterling Ltd.

Election of Frederick A. Tilston as president of Sterling Drug Mfg. Ltd., Windsor, Ont., has been announced by the board of directors. A native Canadian and holder of Britain's Victoria Cross, Mr. Tilston succeeds the late Ralph W. Henderson, who died in June. He has been associated with Sterling Drug in Windsor since 1930.

The board of directors also announced the election of Henry H. Tuckley, works manager, as vice-president in charge of manufacturing operations and a director of the company.

MS&D Animal Science Head

Dr. David F. Green has been named executive director of animal science activities of the Merck Sharp & Dohme Research Laboratories Division, Merck & Co., Inc., according to Dr. Max Tishler, vice president of the Division.

In his new post Dr. Green will be responsible for all veterinary clinical research and field testing of new products for nutritional, proprietary medicinal, and professional veterinary uses.

N. J. Zinc Secretary

Samuel Riker Jr. has been elected secretary of The New Jersey Zinc Company, succeeding the late Walter R. Anyan. Mr. Riker has been treasurer of the company for several years, and he will continue in that office.

Watching Frank N. Getman, president of The Wm. S. Merrell Company, man the scoop during ground-breaking ceremonies for the Merrell Research Laboratory are, left to right, Nelson M. Gampfer, chairman of the board; Harold W. Werner, vice-president in charge of research; and Charles H. Tilford, head of organic research. The new building will house ten laboratory units for medicinal chemistry research and will further Merrell's research and development in gerontology.

Let's look at your cosmetic aerosol fragrance problem from every angle!

In custom-creating a fragrance for your cosmetic aerosol, Givaudan examines your problem from *every* angle—perfume efficacy and consumer acceptability... types of propellents... pressure... solubility... compatibility... container material... cost and other factors.

Our staff is equipped with the skill, knowledge and specialized facilities to study such problems scientifically. Thus we can supply you with a fragrance that is not only technically correct from every viewpoint but uniquely and specifically *yours*. May we work for you—with you—to give your cosmetic aerosols exactly the right fragrance appeal?

GIVAUDAN-DELAWANNA, INC.
330 West 42nd Street, New York 36, N. Y.

DULANY S. SMITH

Upjohn Int. Appointments

Leonard T. Cookson, head of The Upjohn Company's mechanical engineering development department, has been named manager of international engineering. Richard D. Tedrow, head of the international legal department, has been appointed general attorney for international operations.

Holaday Retires

Horace A. Holaday, who has been with E. R. Squibb & Sons for 37 years, has retired from active service.

In 1920, Mr. Holaday joined Squibb as director of bio-chemical research. During his years with Squibb, he held many positions of high responsibility and contributed much to the scientific progress of the company. Most recently he was assistant to the vice-president and director of manufacturing operations.

Rayette Sales Reps

Ralph E. Kaye & Associates, 1375 Cavell Avenue, Highland Park, Ill., have been appointed sales representatives for the Chemical Division of Rayette, Incorporated, in the Milwaukee area, Illinois, Indiana, Michigan and Missouri.

Appointed by Schering

Mario A. Pistacchio has been appointed to Boston division manager for Schering Corporation, succeeding Paul J. Micali who has been appointed assistant advertising manager.

Ramon G. Viada has been appointed to the post of Kansas City division manager.

Fiedler Is Strand Gen. Mgr.

J. George Fiedler has been appointed general manager of Strand Cosmetics, Inc., 1167 Atlantic Avenue, Brooklyn.

Whitehall Vice-Presidents

William L. Haddad and Dulany S. Smith have been promoted to vice-presidents of Whitehall Pharmacal Company, Kenneth A. Bonham, president, has announced, Mr. Haddad joined Whitehall in 1947 as purchasing agent and three years later became assistant secretary.

Mr. Smith recently joined Whitehall Pharmacal as director of brand managers, following employment in manufacturing and advertising of drugs, proprietaries and cosmetics.

Winthrop Asst. Secretary

Harry F. O'Brien has been appointed assistant secretary of Winthrop Laboratories, according to announcement by Dr. Theodore G. Klumpp, president. With Winthrop since 1937, Mr. O'Brien headed the commercial department for the last ten years. Prior to joining Winthrop, he was in the retail drug bussines.

MS&D Chief Ind. Engr.

Michael Damroth has been appointed chief industrial engineer of Merck Sharp & Dohme, Division of Merck & Co., Inc., with responsibility for all industrial engineering work in the Philadelphia and West Point plants of Merck Sharp & Dohme, according to John M. Waligora, chief engineer.

Dow Sales Dept. Promotions

Eugene L. Martinez has been promoted to manager of The Dow Chemical Company's Boston sales office and E. H. Killheffer Jr., has been named to succeed Mr. Martinez as manager of the Buffalo sales office.

On the 42nd anniversary of his employment by van Ameringen-Haebler, Inc., Albert J. Dillinger, left, is congratulated by Charles P. Walker, president of the firm. Employee with the longest length of service in van Ameringn-Haebler, Mr. Dillinger has seen the company grow from five employees to almost 500. He is a past president of the American Society of Perfumers.

WILLIAM L. HADDAD

Alcolac Names Giers

Serge Giers has been appointed general manager of European operations for American Alcolac Corporation. He will be headquartered in Paris and will travel throughout Europe evaluating technical developments and supervising research projects for Alcolac.

Mr. Giers, a native of France, pioneered the development of sodium lauryl sulfates in France and then came to America to help found American Alcolac Corporation. For the past seven years Mr. Giers has directed Alcolac's research and production activities.

Stepan Buys Ninol

The Stepan Chemical Company has concluded negotiations for the acquisition of Ninol Laboratories, Inc., and the properties in which it conducts its business, for approximately $2,000,000.

The announcement was made in a joint statement by Alfred C. Stepan, Jr., president and founder of Stepan Chemical, and Jerome Kritchevsky, president of Ninol. Both firms are located in Chicago. Acquisition of Ninol will increase the present annual sales of the Stepan Chemical Company to approximately $16,000,000, Mr. Stepan said.

Ninol Laboratories, Inc., it is planned, will operate as a division of Stepan Chemical Company. Mr. Kritchevsky joins Stepan Chemical as a vice-president and will be general manager of the Ninol Division. He will also be a member of the board of directors, together with Dr. Theodore Kritchevsky who was formerly vice-president in charge of research and production of Ninol Laboratories and will remain in the same capacity. Dr. Herbert Sanders, director of sales of Ninol Laboratories will have the same position in the Ninol Division. Dr. David B. Hatcher, vice-president and general manager of the Stepan Chemical Company will continue in that position.

Winners of the annual Organon Trip to Holland sales contest receive bon voyage wishes as they are about to board plane. Left to right: Paul J. van Helden Jr., president of Organon; Bernard Handelman, Central Region manager (Manager of the Year), Robert Behrman, representative in the St. Louis area (Salesman of the Year), and Remo Farias, Organon general sales manager.

Hollidge Visiting European Pharmaceutical Plants

K. B. Hollidge, executive vice-president of Arthur Colton Company, is visiting pharmaceutical plants in England, France, Germany, and Sweden during a three week period from Aug. 23 to Sept. 16.

From Aug. 31 to Sept. 16, he is attending the St. Erik's Fair in Stockholm, Sweden, an international industrial exposition in which his company is exhibiting automated tablet presses in the U. S. Government exhibit. The Colton production equipment, which will make candy tablets at a rate of 1,150 tablets per minute, is being exhibited at the invitation of the U. S. Department of Commerce. The U. S. exhibit is stressing automation, and is housed in the U. S. Government pavilion at the exposition.

Lightfoot Name Change

The Lightfoot Schultz Company has changed its name to The Lightfoot Company, Inc., it has been announced by Bernard L. Marks, president.

"We are making this change after nearly fifty years, with some regret," said Mr. Marks, "but we feel that our new name is more appropriate, since all of our branded products are marketed under the Lightfoot name."

J. E. Wickes Retires

Joseph E. Wickes, divisional vice-president of the National Brands Division, Sterling Drug Inc., retired Sept. 1, upon completion of 26 years' service with the Company.

C. G. Green is Gen. Sales Mgr.

C. Gilbert Green has been appointed general sales manager of the Toilet Articles Division of Colgate-Palmolive Company, according to Robert E. Hilbrant, director of marketing for the division. H. P. McClure has been named to the newly created position of general sales and promotion manager of food and drug store Chains.

Moctezuma in New Post

Robert Moctezuma, formerly with Smith, Kline and French Laboratories, has been appointed to the quality control department at Philadelphia Ampoule Laboratories.

Ungerer Philadelphia Mgr.

Joseph L. Fortescue has been appointed manager of the Philadelphia office of Ungerer & Company, Inc. Mr. Fortescue has had over 30 years experience in essential oils and aromatic chemicals. He will be located at the Ungerer office in room 487 of the Bourse Building, 5th and Market Streets.

JOSEPH L. FORTESCUE

Towe Cyanamid President; Malcolm Becomes President

Kenneth C. Towe, president of American Cyanamid Company since January, 1952, was elected to the newly created post of chairman of the board of directors Aug. 20 at the regular quarterly meeting of directors. Dr. Wilbur G. Malcolm, formerly vice-president for marketing, was elected president and chief executive officer of the company. Kenneth H. Klipstein, vice-president, was elected to the board of directors.

Mr. Towe, who will be 65 next January, joined Cyanamid in April, 1926, as a member of its accounting department and, after serving as assistant treasurer and comptroller, was appointed treasurer in April, 1939 and vice-president in charge of finance in May, 1945. He succeeded the late Raymond C. Gaugler as president on the latter's death in January, 1952.

Dr. Malcolm played an outstanding role in the development of Lederle Laboratories, which he joined as a bacteriologist in 1934 and in 1938, at the age of 36, became its executive director. When Lederle was given divisional status in 1946 he was appointed a vice-president of Cyanamid and continued as general manager of the division.

Dr. Malcolm has been a member of the company's board of directors since 1944 and was elected to its executive committee last May.

Witco Ltd. Sales Mgr.

James Cunningham has been appointed sales manager of the newly formed Witco Chemical Co., Canada Ltd. Prior to this appointment Mr. Cunningham was a sales representative in the New York area for the parent firm, Witco Chemical Co. He has been with Witco since 1944 and successively served as chemist, technical service representative, and manager of Witco's stearate plant in Brooklyn.

JAMES CUNNINGHAM

A world of beauty tailored for Milady

Today, every imaginative woman buys her beauty aids tailored to her own personality. In crystal-clear flint and beautiful opal, Hazel-Atlas *Private Mold* Cosmetic Containers are imagination in glass — and practical, too. At domestic prices, they add the glamorous prestige of more expensive imports to your cosmetics. And to save you time and expense, distinctive H-A "Deco-fired" Cosmetic Labels and designs can be economically applied in one or several permanent colors at the time of manufacture.

Rigid quality-controls keep your H-A containers uniform in size, shape, clarity and color. They perform efficiently on the filling line and display your product at its best. You are sure of fast, dependable delivery during sales peaks and emergencies, served by H-A's nationwide network of glass plants and warehouses. A beautiful line of stock containers is also available. Call your nearest H-A representative today.

...glamour in glass

HAZEL-ATLAS GLASS division of CONTINENTAL CAN COMPANY

WHEELING, WEST VIRGINIA

IMITATED...BUT NEVER DUPLICATED IN PERFORMANCE–

THE *Precision Valve*

We, at Precision, are justifiably proud of the performance record that the Precision Valve has achieved in the hands of thousands of users.

Precision is today the largest manufacturer of Aerosol Valves. Largest because of our designing, engineering and manufacturing methods which have created a quality, economical product, that has proved itself in use. Over 500 Million Precision Valves offer proud testimony of our ability to create THE VALVE for your product.

Whatever your aerosol product does . . . It will do it better with a Precision Valve.

Why not call today... Our laboratory and engineering staffs are available to aid you with your valve requirements.

"Known throughout the World"

PRECISION

Precision Valve Corporation

700 NEPPERHAN AVENUE • YONKERS 3, NEW YORK

Promoted by Bristol-Myers

Three promotions in the Research and Development Division of Bristol-Myers Products Division, have been announced by John J. Clarey, vice-president in charge of product planning.

Dr. Martin Kuna has been named director of biological sciences and will supervise biochemistry, organic chemistry, pharmacology and microbiology. Dr. Samuel V. Lieberman has been appointed director of physical sciences and development and will be in charge of development, analytical chemistry, physical chemistry, organoleptics and screening. Dr. Everett L. Saul has been named director of scientific liaison in charge of contact with outside research laboratories and institutions throughout the country.

Drs. Kuna, Lieberman and Saul, together with Ralph Thomas, director of packaging research, comprise the Bristol-Myers research administrative staff reporting to Dr. Wilhelm Reiss, director of research and development.

Promoted by Upjohn

James B. Smith, Upjohn salesman, has been promoted to the post of sales contactor for the Kalamazoo Branch.

Robert C. Ferguson has been named sales supervisor of the south Georgia district for the Atlanta Branch.

Hooker Research Supervisors

Appointed research supervisors at Hooker Electrochemical Co., are Dr. Robert J. Dearborn, phosphorus chemistry group; Dr. Edward Leon, organic synthesis group; Lewis E. Tufts, physical chemistry group; and Dr. Edward D. Weil, agricultural chemistry group.

Joins Polak & Schwarz

George Silver, who recently joined Polak & Schwarz, will concentrate on sales for the recently expanded Industrial and Odormasking Division.

GEORGE SILVER

Becco New Eng. Distribution Center to Be in Framingham

Becco Chemical Division of Food Machinery and Chemical Corporation broke ground Aug. 27 for a new distributing center in Framingham, Mass., to serve the New England area. The new center will be located on Fountain Street just west of Route 128 in Framingham and will occupy an area of approximately 6,000 sq. ft. on 22,000 sq. ft. of land, thus permitting ample room for future expansion. It will replace the company's former distribution center in downtown Boston.

ACS Indiana Officers

Dr. A. E. Jarvis, director of pharmaceutical control for Pitman-Moore Company, has been installed as chairman of the Indiana Section of the American Chemical Society.

Dr. R. M. Brooker, a member of the Pitman-Moore research staff and professor of chemistry at Indiana Central College, is the new secretary. Mark Braford, U. S. Rubber Company, is treasurer, while D. T. Wilson, Eli Lilly and Company, is chairman-elect.

Carbide Appoints

R. S. Abrams has been appointed general manager, and L. J. Sinnott, general sales manager of the Silicones Division, Union Carbide Corporation, it has been announced by W. B. Humes, president of the division.

Mr. Abrams joined Union Carbide in 1941 when he went to work for Linde Air Products Company, Division of the Corporation. He became manager of the silicones plant at Long Reach, West Virginia, in 1955. Earlier this year, Mr. Abrams was appointed manager of production and engineering for the Silicones Division which was formed in 1956 to take over the business of Linde's Silicones Department.

Mr. Sinnott joined Union Carbide in 1942 as a development engineer for Linde. In 1953 he became sales manager for Linde's Silicones Department.

Shelton Appointed by Aniline

Harold G. Shelton has been appointed director of marketing for the Dyestuff & Chemical Division of General Aniline & Film Corporation.

Ciba Marketing Analyst

J. David Donahower has joined the marketing research division at Ciba Pharmaceutical Products Inc. as an analyst.

CLYDE A. BERGER

N.J. Zinc Pigment Dev. Mgr.

Clyde A. Berger has been promoted to the position of pigment development manager by The New Jersey Zinc Company. His headquarters will be in New York.

He served for over twenty years as a pigment sales representative and, during his early years of employment with the company, he acted as pigment investigator in the research department. He is an alumnus of Massachusetts Institute of Technology.

The company has announced transfer of two pigment sales representatives. A. G. McFadden has established his headquarters in Atlanta, and C. H. Petterson has taken up his duties in Detroit.

P-D Hosp. Med. Service Rep.

Mark E. Harris has been promoted to the hospital medical service division of Parke-Davis. He served as a medical research assistant at Vanderbilt University and taught general science in high school before joining Parke-Davis in 1952 as a sales representative in Tennessee.

The medical service division is under the direction of Donald A. Swanson, who said Mr. Harris would concentrate his activities in the Memphis and Nashville areas.

Dr. James R. Fitzsimmons has been appointed to the clinical investigation staff of Parke-Davis. He will aid in the clinical study and evaluation of new medicinals in humans.

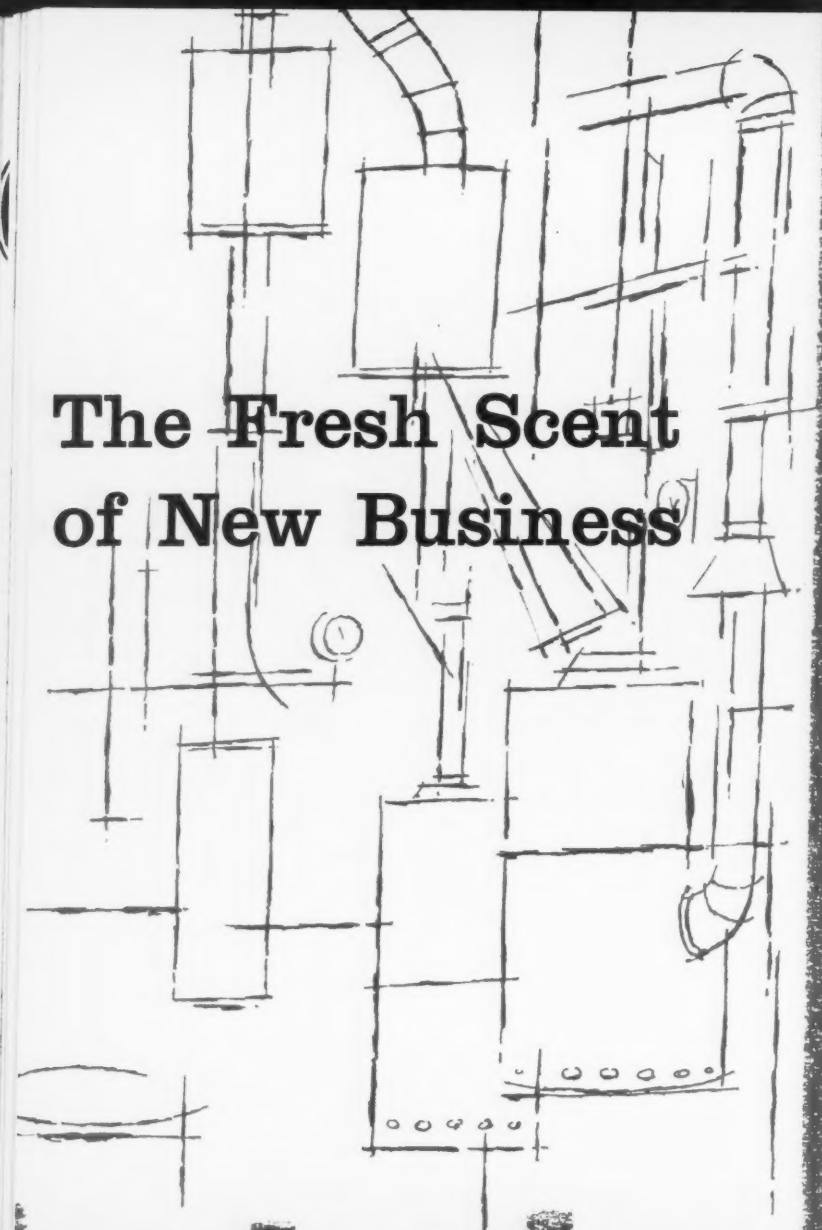
Arner Ltd. Sales Mgr.

Douglas G. Parizeau has been appointed to the newly created post of sales manager of the Arner Co., Ltd., Fort Erie, Ont., Canada.

Harry A. Roth

Harry A. Roth, sales representative for Shulton, Inc., in Oklahoma, Arkansas and Texas, died suddenly on July 28.

The Fresh Scent of New Business



The skilled perfumers and chemists in the *Synfleur* laboratories have been concerned these past 67 years not only with pure craftsmanship of the highest order, but with making that craftsmanship bring results in new business for you as well.

Through the continued use of new scientifically developed perfume materials, *Synfleur* has always been a pace-setter in widening the range of scenting possibilities open to the cosmetic chemist.

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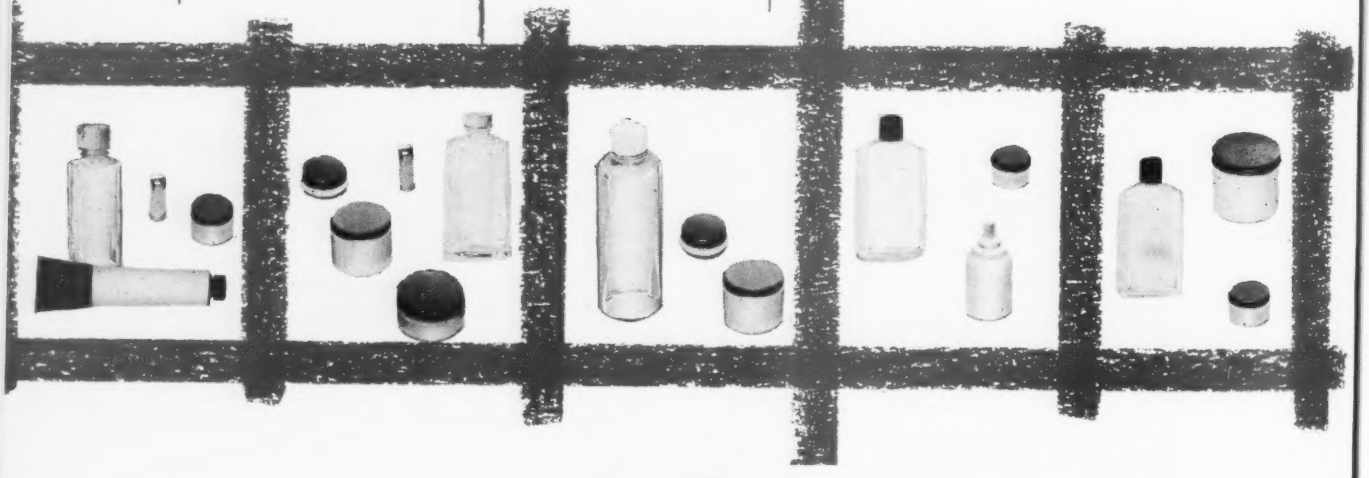

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TECHNICAL
Useful for the synthesis of pharmaceuticals and organic chemicals.

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by Florasynth

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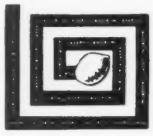
SPECIAL LIQUID FLAVORS

	SUGGESTED USAGE TO 1 GALLON SYRUP
Caramellone Syntharome Imit. Butterscotch Flavor	1/4 to 1/2 oz.
Concentrated Imitation Butterscotch Flavor	2 ozs.
Concentrated Imitation Caramel Flavor	1 oz.
Imitation Tame Cherry Flavor 2:1	2 ozs.
Syntharome Imit. Wild Cherry Flavor Special	1/4 to 1/2 oz.
Imitation Wild Cherry Flavor 2:1	2 ozs.
Imitation Chocolate Aroma Flavor	2 ozs.
Cola Type Flavor 1:1	1/2 to 1 oz.
Cola Type Flavor 4:1	4 ozs.
Concentrated Lemon-Lime Flavor	1/4 to 1/2 oz.
Licorice Type Flavor 1:1	1/2 to 1 oz.
Syntharome Imitation Maplenut Flavor	1/2 oz.
Syntharome Imitation Raspberry Flavor	1/4 to 1/2 oz.
Syntharome Imit. Tutti-Frutti Flavor	1/4 to 1/2 oz.
Imitation Tutti-Frutti Flavor 2:1	2 ozs.
Imitation Rum and Butter Flavor	1/2 oz.

The indicated usages to the gallon of syrup are mentioned purely as indications for test evaluation work in manufacturer's own formulations.

ENTRAPPED POWDERED FLAVORS



Florasynth being one of the first companies to manufacture powdered flavoring materials, we list below descriptive details of what we feel to be the finest type of New Entrapped Powdered Flavors. Features of these New Entrapped Powders are (1) as high as 50% oil content by weight. (2) Instantly dispersable. (3) Non-hygroscopic. (4) Extremely economical. Shelf life studies have indicated excellent results.

	SUGGESTED USAGE TO 100 LBS.
Apple Imitation	2 to 4 oz.
Banana Imitation	2 to 4 oz.
Cherry Imitation	2 to 4 oz.
Cola Type	2 to 4 oz.
Grape Imitation	2 to 4 oz.
Lemon	2 to 4 oz.
Lemon-Lime	2 to 4 oz.
Lime	2 to 4 oz.
Loganberry Imitation	2 to 4 oz.
Maple Imitation	2 to 4 oz.
Orange	2 to 4 oz.
Pineapple Imitation	2 to 4 oz.
Raspberry Imitation	2 to 4 oz.
Root Beer	2 to 4 oz.
Strawberry Imitation	2 to 4 oz.
Tutti-Frutti Imitation	2 to 4 oz.

Other Entrapped Flavors Developed on Request

Standard Packing: 150 lb. containers

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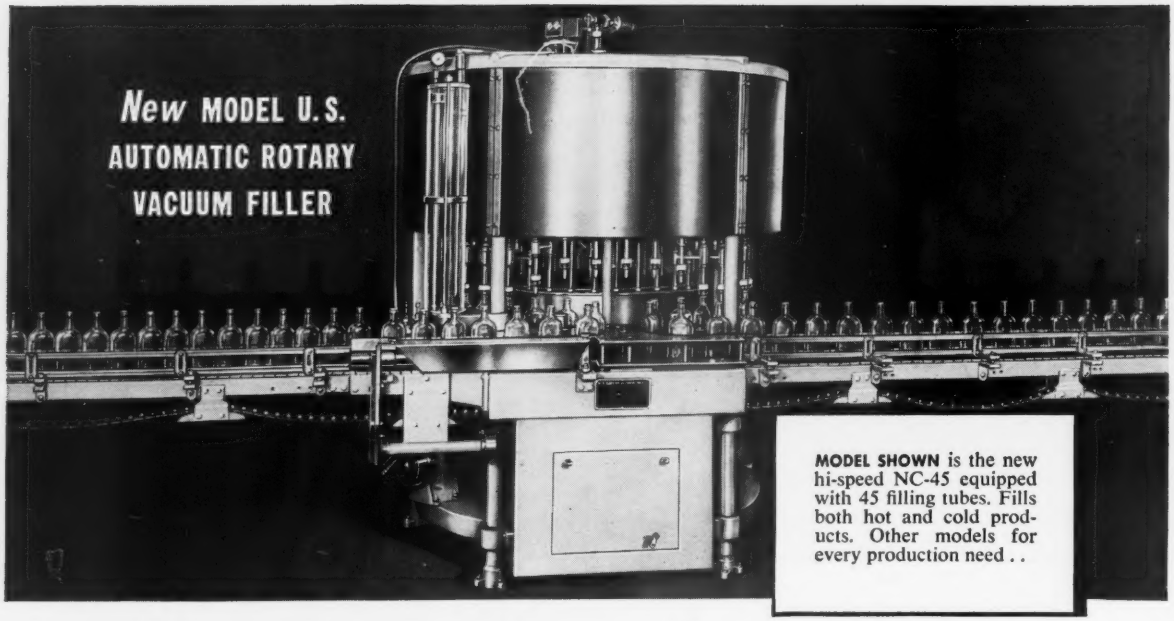

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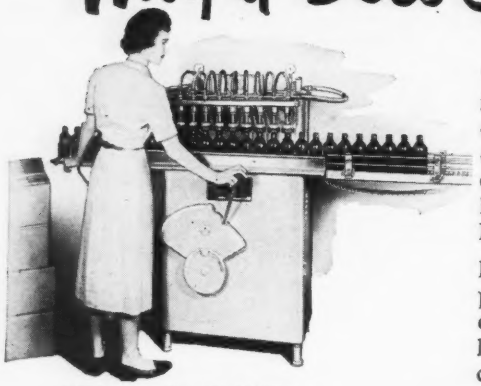

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Whatever your liquid filling needs may be, write for engineering recommendations or request the "Rotary Filler Bulletin."

MODEL B-2 VACUUM FILLER. Continuous production, filling two containers at a time. For liquids and semi-liquids. Automatic product supply. Vacuum adjustable and flow-regulated. For containers up to 4⅛" dia. Send for Bulletin B-2.

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SPECIALISTS IN LIQUID FILLING AND CONTAINER CLEANING EQUIPMENT

Management Forum

by Francis Chilson
INDUSTRIAL CONSULTANT

Barriers to Thought

It is axiomatic that the head of any business should be a deep thinker, able to assimilate facts quickly, evaluate them accurately and relate them to other relevant facts or data. He should be able to make quick decisions based on sound, clear thinking. Many bad decisions are made because they are not based on sound thinking;—many decisions are made on the spur of the moment without any thinking at all. In our industry I have observed many instances of sloppy thinking and no thinking at all by company presidents and upper level officials who should do the basic thinking for their companies. How do they get this way?

I attribute it to three barriers to thought: paper work, conferences, committees. I am continually amazed that company officials allow themselves to be buried in paper. Too many bits of paper float all the way to the top: too many reports, too many letters, too many memos, too many everything.

This condition is evidence of bad organization and bad training. To keep a firm grip on the essentials of any business does not necessitate wallowing through a plethora of paper. In fact too much paper mitigates against keep the essential elements in view. I know a few company officials who never read letters, never read reports or other impedimenta until they have epitomized to the essential marrow by subordinates. If an administrator doesn't have subordinates who can do that for him, he has the wrong subordinates—or the subordinates have the wrong boss. The average memorandum and most of the reports, regardless of subject are invariably twice as long as they should be. We need long range thinkers; we have enough of the sort who can see tomorrow's problems but not next week's.

Conferences are barriers to thought because so much time is wasted in them. People attending them have not thoroughly evaluated their data; they haven't the facts; too much time is wasted in thinking out loud and in splitting details. Few administrators are good conference leaders. They do not have an agenda; they allow too much irrelevant discussion. In short they waste time gassing when they should be thinking.

Committees are bastards born of conferences. Committees are appointed because the conferees weren't prepared with factual data when they came to the conference in the first place. Committees are therefore the prolonged tentacles of conferences.

It is of course not possible to conduct a business having many divisions and many facets with some conferences and without some committees. Different divisions of a business have no means of working in coordination unless it is done through some form of committee. But committees should be limited in number and in personnel.

I am sick and tired of conferences that begin early, end late and accomplish nothing. Yet I know company presidents—many of them—who spend the major portion of every day in one conference or another. It's no wonder they don't think; they haven't time to.

Research Laboratory Design

Much money is being poured into research laboratories. Some of it would be as effective if poured down the John. We don't need gilded palaces for research work; we don't need 24 storey glass towers like the one Wright designed for Johnson's Wax—which, so I'm told, they were never able to use for research purposes—we don't need fancy multi-storey buildings such as are being built now in several places.

There is almost as much reason to keep a research unit on the ground as there is to keep a factory on the ground. Research is unpredictable and one can never be sure whether the pharmacology section will take off like a scalded dog or whether it will be bio-chemistry, organic chemistry or physical chemistry sections. Whenever any one of these divisions is on an upper storey a problem is presented when all the space

on that floor is used up and the laboratories must still be expanded.

During the war I made a survey for Upjohn and recommended the construction of a new one storey factory and the allocation of the old multi-storey factory to research. Afterward I got hell from Dr. Hart, then director of research, because *he* wanted the single storey building for the laboratories. At that time the labs occupied the upper six floors in a fourteen storey building—if my memory serves correctly. As Dr. Hart took me around he showed me bacteriological laboratories in three locations on three different floors.

It was ever thus in the layout out of a multi-storey building. A certain amount of space is allowed on each floor for certain labs plus a guesstimate of extra space for expansion. But it never works out that way because no one can tell how much expansion space to provide on each floor.

Up to now no one has ever discovered a way to stretch an upper storey.

Recently I designed a pharmaceutical plant. It was arranged so that research laboratories were on the ground and could be expanded indefinitely without any trouble at all. But Mr. Bigboss got sold on a halfassed architect-engineer (so-called) who sold him the idea of junking my facade and putting up a three storey front to house personnel services, research laboratories, general and executive offices. The general offices and the labs were placed on the second floor. In two years time the research chemists were practically breathing down each other's necks for want of additional space. And nowhere to get it without constructing a multi-storey wing, and this hasn't been done because the first and third floors don't need any additional space.

Keep your research laboratories on the ground and you won't get into trouble in the future. Let's consider what goes into a pharmaceutical research laboratory. First you have a building service section: this comprises air conditioning equipment, including heating of course, water treating equipment, compressors for air, vacuum pumps; possibly a shop for glass blowing and making minor gadgets, glass washing room, etc. Allied to the building services but in a little different category are locker rooms and toilets, possibly a lunch room or complete cafeteria, library, seminar room and one or more conference rooms, Reception room, offices secretarial pool, file room, vault.

Now come the main laboratory divisions: pharmacology laboratories with adjacent animal quarters, feed rooms, wash room, etc. Bacteriology laboratories, Micro-biology laboratories, biochemical laboratories, organic chemistry laboratories, pharmaceutical chemistry laboratories, pharmaceutical compounding or pilot plant, organic chemistry pilot plant, physical chemistry laboratories, electro-chemistry laboratories. Then, very important, supply room, sample storage room. (There's never enough storage room in research laboratories.)

Then there are rooms that may be used in common by several different groups of laboratories: special instrument rooms, photographic and development lab, x-ray laboratories, etc.

Now that we have an outline of what we are going to put into our laboratories what type of building shall we build? One storey of course. A basement is convenient but expensive to build. Depending on terrain and soil conditions a basement could cost a lot more per square foot than surface space. Usually it does. The virtue of a basement is that it provides a convenient means of running roughing and other laboratory services. It provides space for building service equipment and for miscellaneous sample storage. But I'd rather build on the ground and bring the services down from the ceiling. It's more economical.

The next question to be settled is the type of building. A lot of chemists like an outside outlook and prefer laboratories built in the form of an H, a C or an E. Nothing can beat a square or a rectangle for economy of construction. Consider this: I am designing a new research laboratory of 30,000. In a building 150 X 200 feet there are a total of 700 linear feet of outside wall. In an E shaped building of the same square footage with the wings approximately equal, there is more than twice the linear footage of outside wall. This means also: twice the linear footage of foundation, roof flashing and roof parapet or coping. Not to mention extra footages of all the air conditioning ducts, service piping etc. Since it is the ratio of wall area to floor area that largely determines the cost of the shell of the building, it is obvious that the queer shapes cost a whale of a lot more to build. Also, because of radiation losses through excessive window areas, the letter shaped buildings cost a lot more to cool in summer and to heat in winter. Besides, such buildings, when they expand, become hopeless because of the excessive length of the expanded legs. Now comes some serious layout problems. Regardless of how many research men the laboratories provide for certain areas are in frequent use and should be centralized as much as possible: the library is one; locker rooms and toilet facilities for another; commonly used special instrument rooms and laboratories for a third; the offices of the section directors, the research director and the laboratory administrator must likewise be accessible. But I have designed and am designing units in which the laboratories are close to the commonly and frequently shared functions.

I have seen research laboratories in which vast expanses of wall glass were used. The glare was so great that Venetian blinds had to be installed to keep the light out. I have seen laboratories designed with emphasis, not only on outside light but an outside view, in which laboratories were located along a single corridor that ran along an outside wall. In other words

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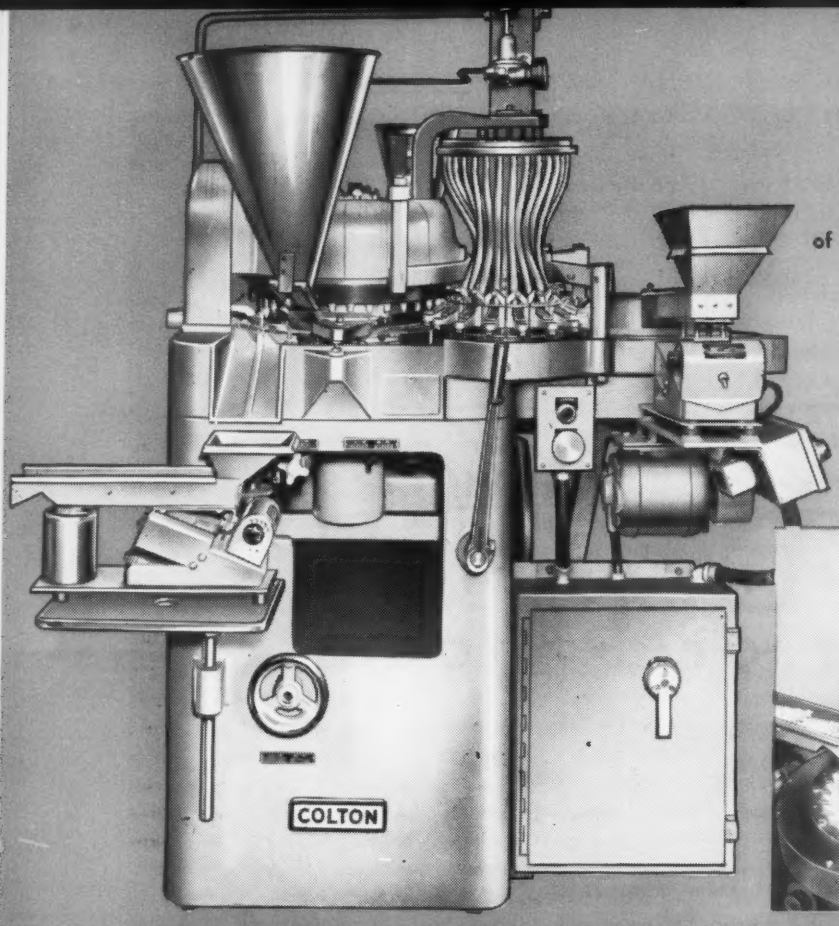

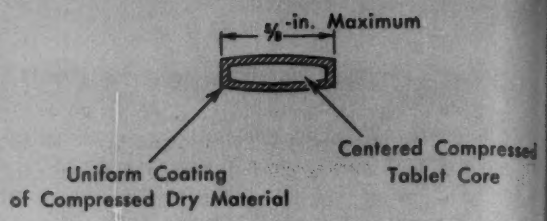

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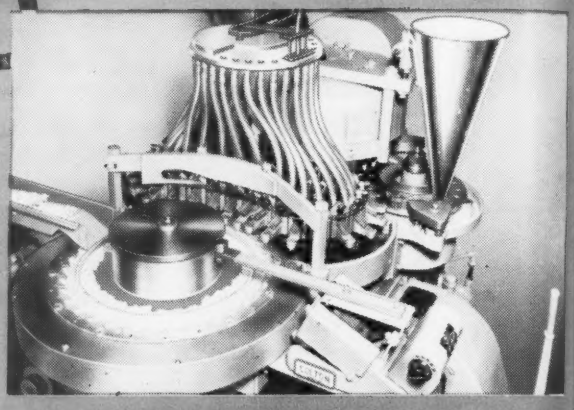

COLTON No. 232—revolutionary new high-speed automatic applies dry coatings to tablet cores at speeds up to 900 tablets per minute

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The simplicity of the principle applied in feeding upper and lower granulation charges; the controlled accuracy and adjustability of each charge; the precisely guided, automatically exact centering of the core; the dependable assurance of no coreless tablets by simple, automatic checks—all these recommend this machine for high-speed production work where dry coating is either preferred or necessary. You are invited to write for Bulletin AC-40.

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for every linear foot of laboratory they had a linear foot of six or eight foot corridor. When corridors separate two rows of laboratories you have two linear feet of laboratory per foot of corridor. Obviously more economical.

Scientists are often prima donnas and insist on a laboratory with an outside outlook. They know that daylight as such is worthless as light because it changes every moment. But I have seen in laboratories that were wholly inside and without windows at all, scientists working in harmony and without complaining because of good air conditioning and good constant lighting.

After 57

When I was a kid the symbol 57 stood for something good, It stood for Heinz Pickles—"that were good for soup; they make your belly go loop-the-loop." Now that I am 57 the symbol still stands for pickles and they are all sour. I was reminded of this when a friend of the same age recently got the axe. I don't know why yet. But I do know that because of the way pension systems have strait-jacketed our economic system a man of 57 is on the scrap heap unless he can go into business for himself or enter one of the service industries where age is not an important factor. I have seen many men in their fifties chucked out because of management changes and mergers. Most of them seem unable to make a comeback. The shock of being thrown out seems to break their spirits. It's too bad but that's the way it is.

Herb Strate's Tranquillizer

I am sure most of you know Herb Strate, the genial impressario of Strong Cobb & Co. Herb has been around a long time and you can always spot him quickly at a convention because his shining bald pate can be seen sticking up about a foot above everyone else's. He can look down on everybody in the trade except Dave Barney.

Herb started out in life to be a plumber. One day he got a job fixing some pipes in a convent. It seems that the pipes were under a floor very close to the ground, leaving very little room for a man as big as Herb is to work in. What made it worse was that the pipes were old and rusted and exceedingly difficult to take apart. Pretty soon some language began to issue up through the floor into the quiet, sacred precincts that was never heard before in any convent anywhere.

When Herb finally extricated himself and the pipes, the Mother Superior gently informed him that his language had caused her acute distress because her Father confessor happened to be visiting her at that moment and was astounded to hear such picturesque language issuing up through the floor boards in loud male tones. Herb then and there decided to go into some business where the use of such vivid language would not be necessary.

So he went to work for a druggist and became so enamored of the witch's brews they used to concoct those days that in due course he became a graduate pharmaceutical chemist and then a bug watcher—a bacteriologist. In the course of his many long years at Strong Cobb—a hundred or so—Herb made a very important discovery which I am now announcing to the world:—If you want to ease tension and relax yourself before going home from work play a hand or two of gin rummy. Herb keeps a deck of cards in his desk and just after he quits for the day he buttonholes anybody who happens to be handy and plays a hand or two or maybe even a game or two before he goes home. He tried the system on me and I can testify it is remarkable how a few hands of gin relaxes one. I comment it to you. Try it.

I proclaim this one of the great discoveries of the atomic age. This procedure should be mandatory in every executive office and wherever else men work under stress. It's better than chemical tranquillizers.

Of course I wouldn't advise you to try a hand of gin rummy with Herb Strate. He never cheats of course. But whenever his hand looks like a loser he simply changes the ground rules so that he comes out a winner. Whenever I tell Herb that other people do not play his way he assures me benignly that other people do not know the rules. My friend Herb may not know other people's rules but he certainly knows his own.

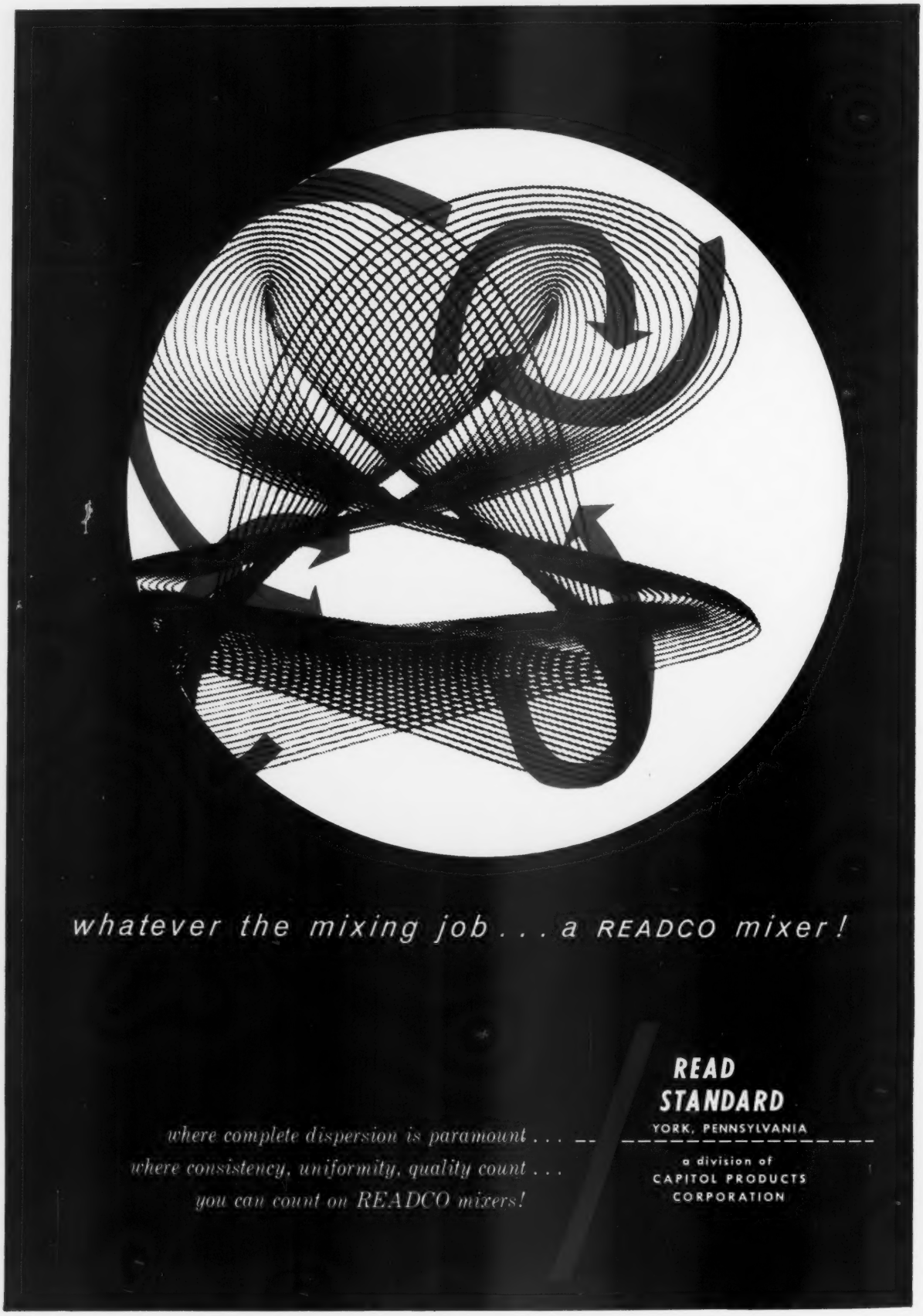
The Metric System

The following interesting letter from F. H. Dance, production manager of Charles E. Frosst & Co., Montreal, Canada, describes Canadian experience, which generally is well ahead of ours, in adopting the metric system. I heartily endorse Mr. Dance's comments on the need for greater uniformity between Canadian and American fluid measure. We should go metric all the way. Let's all get behind this constructive measure.

"In the July issue of D.C.I. you congratulate Eli Lilly & Co. on their change to the metric system. I heartily agree with you on your opinion that this change is long overdue in the Pharmaceutical Industry.

"I do think that your readers ought to know that your Canadian neighbours, in 1950, attempted to make such a change general throughout the Canadian Pharmaceutical Industry. The Production Section of the Canadian Pharmaceutical Manufacturers' Association unanimously endorsed a change to the metric system for all internal manufacturing processes, such as purchasing, compounding and costing operations. As a result most Canadian companies have partially adopted the metric system: a few have been changed over completely.

"The change has been carried out with varying degrees of success. Charles E. Frosst & Company in 1950 made a complete change to metric weights and measures, formulae, and costing. All purchases were requested in the metric system, and while most of the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suppliers cooperated, it has been difficult to get certain supplies such as liquid paraffin, alcohol and glycerine, packaged in litres or kilos. By converting these few commodities at the point of receiving and control acceptance, we have been able to successfully work in metric. The staff accepted the change readily and without confusion.

"The sooner all pharmaceutical manufacturers join the ranks of the metric system users, the more ready suppliers will be to sell their commodities in the metric system.

"There is another related problem which needs correcting. The United States and Canada should agree on their fluid measure: our fluid ounce is not the same as yours, neither do our pints, quarts or gallons agree —the metric system is the answer to this hodge-podge of measuring systems.

"Here is a job for the American and Canadian Pharmaceutical Associations to tackle together.

"Great Britain accomplished a changeover in the fluid measures successfully. The operation was, undoubtedly, not painless, but the results are certainly worth the trouble, and it is extremely doubtful if there is one surviving proponent of the old system, who would revert if he were given the opportunity.

"This is an appeal for your support and I feel sure that the unanimity will come to pass much sooner if you continually prod your readers.

Yours very truly,
CHARLES E. FROSST & CO.,
F. H. Dance,
Production Manager."

Prestressed Concrete

The use of pre-stressed concrete in construction of various kinds is increasing enormously. Pre-stressing means that the concrete is kept under tension while it is being made by means of high tensile strength steel wires. Thus it is different from ordinary reinforced concrete which adds the strength of steel rods to the concrete but does not substantially increase the strength of the concrete itself. Pre-stressed concrete beams are very much stronger than reinforced concrete beams and in some applications are almost as strong as steel itself. For example piles made of prestressed concrete are as strong as steel under certain conditions insofar as load bearing capacity is concerned. In general however about three pounds of prestressed concrete equals the load bearing capacity of one pound of steel but the three pounds of pre-stressed material is very much cheaper than the steel.

Pre-stressed concrete beams and other structural members are used instead of steel beams in bridge arches, girders, struts, etc. Tremendous cantilever spans are made in Mexico using light weight prestressed concrete. At the ICI research center in England, the roof of the canteen is supported by prestressed concrete columns that are integrally made units so that the columns and the girders are single pieces. The span is tremendous. Pre-stressed concrete beams are made—often on the construction site—by stretching steel wires about eight inches per hundred feet. The concrete is poured around the wires and vibrated to eliminate air pockets. When the beam or slab is made the release of the wires sets up tensions all through the member thus increasing its strength enormously. The popularity of this material is increasing because it is cheaper and more readily available than steel. You can get more dope from Pre-stressed Concrete Institute, Boca Raton, Florida.

Open vs Partitioned Offices

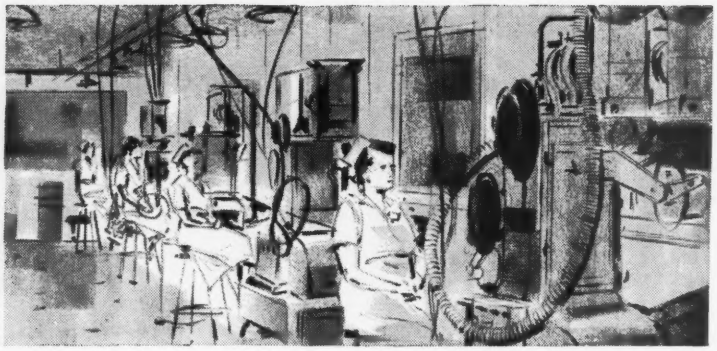
Brian O'Malley, Editor of the Alchemist, an English Pharmaceutical digest published in London, sent me the following extract from The April 1953 Alchemist as a commentary on my piece about private offices in the June '57 issue: (*Thanks Mr. O'Malley. That's a fine old English name you have! God bless you!*)

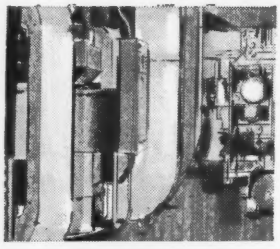
"There's nothing like learning from the Americans. One British executive, according to a story that is now circulating, was much impressed during a visit to his firm's opposite number in New York by the layout of the offices there. Instead of having separate offices for each department the whole office staff was accommodated in one huge room. The executive was quick to appreciate how splendidly this arrangement must foster inter-departmental co-operation, and he had hardly set foot on English soil again before he was on the phone to his architects. In a very short time walls and partitions had been torn down and the entire office staff left free to co-operate inter-departmentally to their heart's content.

It seems, however, that while the British executive was in New York an American executive had been visiting Britain. On being shown over the London offices the American grasped at once the advantages to be gained from having separate offices for each department, and the latest news is that workmen in New York are now busy building walls so as to divide the one huge office into a lot of little ones."

Doing the Boss's Thinking

It is amazing that so often in my consulting work I find so many men anticipating the boss's thinking. Time after time I have been told that it is fruitless to bring certain projects to the attention of Mr. Bigboss. I am given all sorts of reasons why my friends know for certain that Mr. Bigboss will disapprove the project in question. I am told that he is prejudiced against certain things and therefore no useful purpose is served by bringing them up. I am told that Mr. Bigboss will oppose on policy grounds. He won't spend the money. He won't do this and he won't do that. They have it all figured out. But I'm not one to take 'no' for an answer, and if a project looks good, Mr. Bigboss will hear about it whether he approves or not. Almost without exception Mr. Bigboss approves and I find that the





SERVICE... IT IS MANY THINGS

Service at Ivers-Lee means speed of production. It means quality Unit-Packaging. It means attention to every detail . . . from original design to suit the product to final, careful delivery. It is service based on a thorough understanding of the merchandising and distribution problems of our customers.

This is service which allows the small customer to obtain the advantages of packaging techniques and equipment he could not afford to maintain in his own plant. Too, the large customer is relieved of the necessity of investing huge sums of money in equipment which he would otherwise need for his greater requirements—and, at the same time, allows him to keep inventories low.

Here is service that permits **all** customers to change their Unit-Packages at will and to design new packages for sampling or selling introductory products.

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Ivers-Lee is the creator and Contract Packager of Super-Sealtite, the Catchcover, the Tab Pak and a thousand and one other unusual packages for sampling and distributing single or multiple doses of tablets, capsules, powders, creams and liquid Dropettes.

project was never brought to his attention. People just *assumed* he would oppose it. On one occasion I was told that Mr. Bigboss would never consider the consolidation of all inventories into one warehouse regardless of how much money could be saved in material handling. The firm had had a fire forty years before that and a dictum then was issued that thereafter inventories had to be kept in separate warehouses. The result was they were scattered all over hell's half acre. In the years subsequent to the fire, the company grew enormously; sprinkler systems were invented; fire fighting apparatus had been improved, but nobody dared to challenge Mr. Bigboss's dictum until I did. I found he'd forgotten all about it and was amazed that the inventories hadn't been consolidated long ago. I could write a bookful of similar cases.

Multi - Layer Tabletting Presses

Two- and three-layer tablets, with each layer distinctly separate from the others, and with each layer containing a precisely-controlled weight of material, are now being produced on special rotary tabletting presses introduced by F. J. Stokes Corporation, 5500 Taber Road, Philadelphia 20.

Precompression of each layer of material after it has been filled into the die creates sharply defined surfaces between layers and permits ejection of individual layers for accurate weight check while the machine is running at any desired production speed.

Typical pharmaceutical applications for the new Stokes multi-layer presses include time-disintegrating tablets, three-layer tablets containing two active materials separated by a middle layer of inert material, and combinations of two or three incompatible materials in separate layers.

The new Stokes multi-layer presses are equipped with adjustable upper rolls which provide easy and accurate adjustment of precompression and final compression strokes. Each fill station has its own hopper, feed frame and adjustable fill cam. Special feed frames wipe the die table clean for positive separation of materials.

When setting up the press, the material for each layer is accurately weighed and the fill station adjusted accordingly. To correct variations which may arise in the consistency of the granulations from batch to batch, the individual precompressed layer is manually ejected, its weight checked, and the proper fill station adjusted to compensate—all while the machine is in full operation.

Electrical Vacuum Gages

A new line of electrical vacuum gages for continuous and consistently accurate measurement of very low absolute pressure has been introduced by the Vacuum Equipment Division of F. J. Stokes Corporation. Both indicating and recording models are available, in three pressure ranges:

Model TP-5—1 to 100 microns
Model TP-3—1 to 1,000 microns
Model TP-4—1 to 20,000 microns

The new Stokes gages operate on the principle of a thermopile which gives inherently greater sensitivity than other designs. They incorporate a patented thermopile circuit, in which an array of noble metal elements are securely butt-welded into continuous wires. The hot junctions of the thermopile are heated by a-c while the cold junctions are kept at ambient temperature by heavy copper mounting studs, thus generating a d-c voltage. Direct heating of the couples insures fast and complete response.

As the pressure is reduced in the vacuum system being measured, and in the sensing tube connecting the gage to it, the thermal conductivity of the gas surrounding the heated junctions is reduced. As a result, less heat is carried away from the heated junctions, their temperature rises and the output voltage increases correspondingly. A sola type constant voltage transformer compensates for line voltage variation.

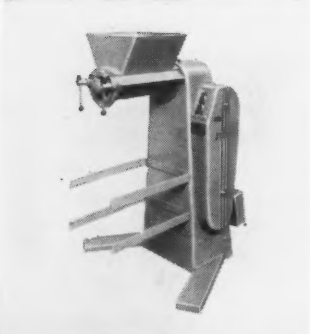
Plan-N-Print Kit

Templan Inc., 5948 College Avenue, Indianapolis, Ind., offer for sale a kit of templates for making layouts, and a development kit so that you can make your own layout prints directly from the master layout. You don't have to be an engineer or draftsman to make layout prints with this outfit. The templates are exact scale layouts—usually one quarter or one eighth inch per foot—of your equipment: desks, chairs, etc. For nominal prices the company sells thousands of different templates of standard equipment and furnishings. By providing them with prints of your production equipment they will make scale templates from the prints. The templates may be of any color you wish and are drawn either in plan or in perspective as desired. The templates are made of plastic and have little magnets attached so that they can easily be picked up and moved around and yet will stick on the magnetized planning board that comes with the kit.

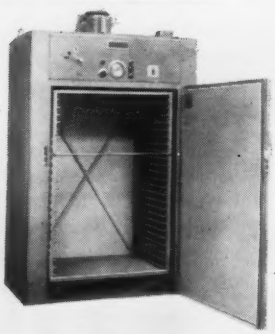
Areas are outlined to scale on the grid sheet with dark Scotch tape. The grid sheet is placed over a sheet of sensitized paper on the magnetized planning board. Thus the templates hold the sensitized paper and the grid sheet in position. When the planning is finished the planning unit is placed under the portable carrying case and the lights in the case are turned on. In five minutes the print is ready to be developed. This does not require a dark room. Cotton is dampened with a developing solution and lightly brushed over the sheet. Instantly you have a permanent plan which can be reproduced as many times as necessary. All supplies are obtainable from the company.

Strong Cobb operator John Klipfell checks the capsule-shaped tablets being produced on the Stokes Model 533. The centralized control panel at the front of the machine facilitates rapid set-up and adjustments.

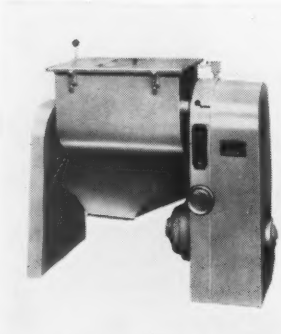
Stokes Auxiliary Equipment for Pharmaceutical Manufacturers



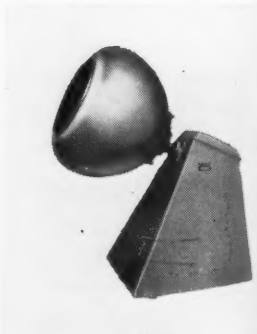
Granulators employ the efficient oscillating principle for breaking up moistened or dried aggregates. In a range of capacities.



Drying Cabinets use recirculating air; steam or electric heating under automatic control. Models with 5, 16 and 24 trays.



Granulating Mixers, for blending wet or dry materials, feature dust-tight lid, safety shut-off, controlled tilt for unloading.



Coating Pans. Model 1-D stand uses 16″ to 60″ stainless or copper pans, or polishing pans with removable canvas drums.

A close-up view of the capsule-shaped tablets tumbling from the die table. Tablets produced on both pressure stations of the "double-sided" Model 533 are more uniform because a single hydraulic adjustment controls release pressure of both rolls.

Strong Cobb compresses capsules 2 to 3 times faster on new Stokes 533 tabletting machine

Strong Cobb Company, Inc. of Cleveland, Ohio are producing capsule-shaped tablets on a Stokes Model 533 Rotary Tabletting Machine. Production rates have increased 2 to 3 times over that of former equipment.

Many of the quality pharmaceuticals being produced by this well known Cleveland private formula manufacturer involve the handling of the more difficult materials such as liver extracts, yeast, and mineral-vitamin combinations. Strong Cobb has had "very satisfactory results" in the tabletting of these formulations on their new Stokes Model 533.

Key production personnel like their new rotary tabletting press—say that it is "quiet, smooth and also quite efficient."

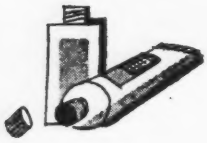
This quiet, smooth and efficient operation is the result of careful design engineering. Heavy duty ball, needle and roller bearings are used at vital points. Large diameter punch circle, wide-face pressure rolls, and gradual slope cams all add up to smooth, precise, high-speed operation and long tool life.

The Stokes Model 533 occupies little floor space. Operating costs are lower because the press requires so very little attention. Pressurized lubrication is continuous and completely automatic. Centralized controls and easy access enable fast and accurate set-up, adjustment and changeover.

Find out how the new Stokes Rotary Tabletting machines can save on your own production. Write for Bulletin 650 or call your nearest Stokes office.

Pharmaceutical Equipment Division
F. J. STOKES CORPORATION
5500 Tabor Road, Philadelphia 20, Pa.

STOKES



Advancing Therapy

Lysine for Geriatric Nutrition

Elderly patients who are in poor nutrition during convalescence can be helped along the road to recovery by the addition of small amounts of the essential amino acid, lysine, to their diet, according to a report published in *Geriatrics*.

Lysine acts to improve the total protein quality of the diet, thus aiding the body's own recuperative powers, and may also have an effect on appetite, according to Dr. Anthony A. Albanese, chief of the Nutritional Research Laboratory of St. Luke's Hospital, Greenwish, Conn.

Dr. Albanese's observations, based on a study of 39 convalescent men and women, mostly elderly, revealed that more than half of the patients failed to show satisfactory nutritional progress on diets containing amounts of protein found adequate for normal adults.

The daily addition of 600 to 900 milligrams of lysine, given in tablet form with supplementary vitamins at each meal, was found to "significantly improve" the nutritional status of 60 per cent of the patients treated. Nutritional status was measured by nitrogen balance tests that indicate whether the protein eaten is being retained in the body for tissue building.

Chlorothiazide Oral Diuretic

Chlorothiazide (Merck, Sharp & Dohme) is an effective orally administered diuretic agent which is a nonmercurial and apparently is not toxic, according to J. H. Moyer, R. V. Ford and C. L. Spurr (*Proc. Soc. Exptl. Biol. Med.*, 95:529, 1957). An oral dose has a rapid onset of action (2 hours) and a short duration (12 hours) of effect. In current trials, it maintains its effectiveness when administered daily (in contrast to carbonic anhydrase inhibitors). It is slightly more effective after oral than after intravenous administration indicating complete or at least adequate absorption by the oral route. No toxicity was observed in 20 patients who received the drug daily for 3 months.

In comparing chlorothiazide to other oral diuretic agents at the maximum clinically tolerated doses, it appears to be more potent in causing an increase in sodium excretion than chlormerodrin (Neohydrin) and acetazoleamide (Diamox).

Prolonged Hypnotic Action

Various drugs have been tested by F. N. Faster, R. N. Spedan and H. Waal (*Brit. J. Pharmacal.* 12:251, 1957) for a capacity to prolong the hypnotic effect of chloral hydrate in mice. Amongst the compounds which, when injected subcutaneously in substantial amount shortly before the chloral hydrate, increased sleeping time significantly were adrenaline, noradrenaline, phenylephrine, methoxamine, 5-hydroxytryptamine (serotonin), histamine, ergotamine, yohimbine, and atropine. The ability of these drugs to prolong chloral hydrate sleeping time could not be related to any common circulatory property, but most of the active drugs are known to lower body temperature under comparable conditions. It is suggested that some, at least, of the drugs which prolong the effects of hypnotics do so by virtue of a hypothermic action.

Intramuscular Iron

Hematological values were studied by R. O. Wallerstein and M. S. Hoag (*J.A.M.A.* 164:962, 1957) in 24 infants with iron-deficiency anemia before and after treatment with intramuscular doses of iron-dextran. Hemoglobin values rose to about 11 Gm. per 100 ml. in three weeks. Rises of 4 per cent per day were seen in several infants with severe anemia. Reticulocyte response occurred early and correlated fairly well with the degree of anemia in patients with severe anemia; it was inconstant in patients with moderate anemia. There were no untoward effects from the iron injections. Imferon (an iron-dextran complex containing the equivalent of 50 mg. of iron per cubic milliliter) given intramuscularly appears to be a safe, effective, and convenient form of iron treatment in infancy.

Psychochemistry

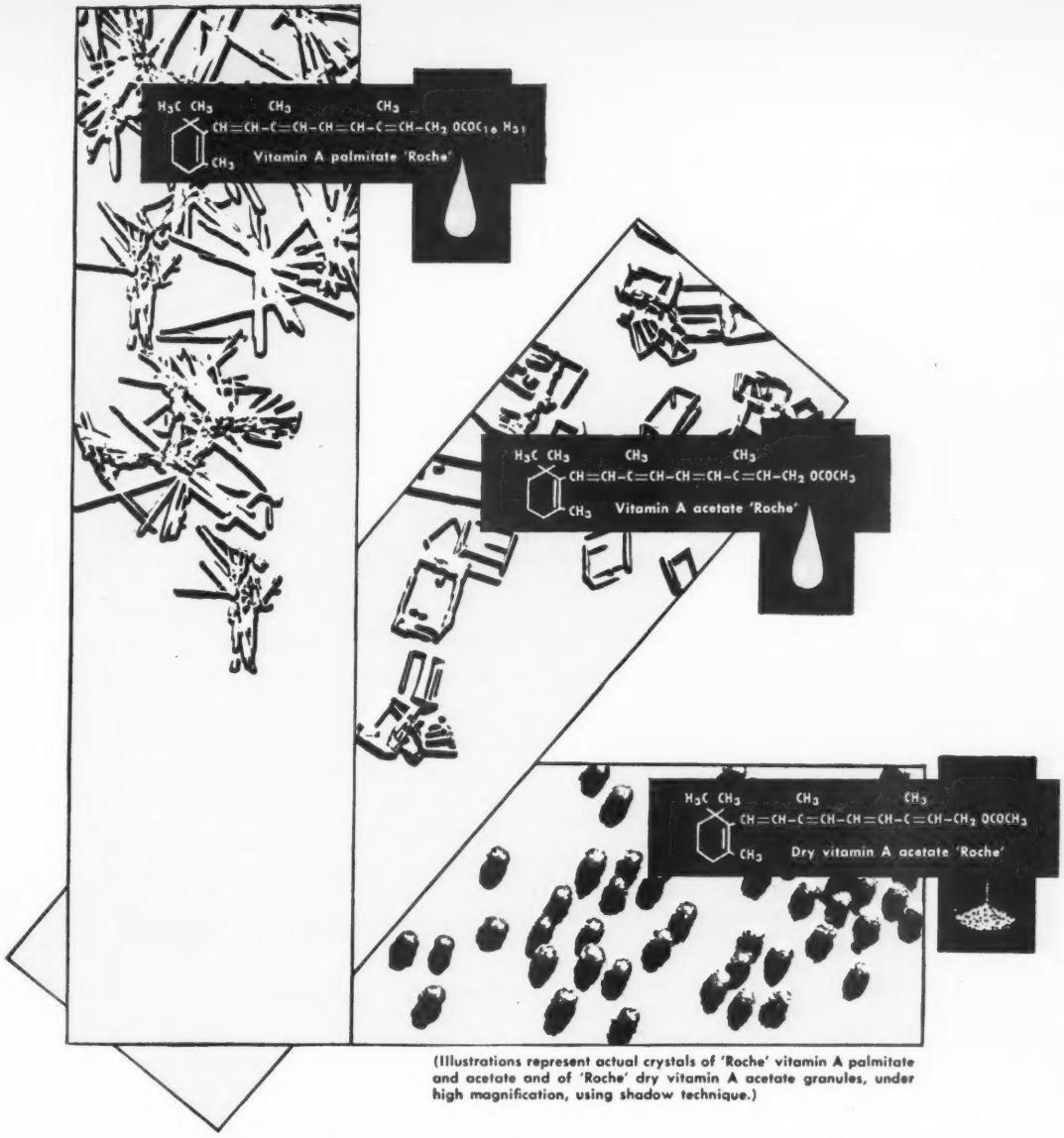
Studies now under way at Battelle Institute are aimed at increasing understanding of the actions and significance of certain functional chemical groups that occur in a number of compounds that produce radical psychic changes.

This research is being underwritten by the U. S. Public Health Service with a 12-month grant. Dr. Richard D. Morin, who will conduct the investigations at Battelle in collaboration with Dr. Frederick Benington and Dr. Edward L. Kropa, expects that by preparing hybrids and combinations of a number of compounds of known psychic activity, it may be possible to determine which parts of certain molecules are responsible for specific effects on the brain.

The four functional groups of greatest interest in this study are: the vicinal trimethoxy linkage, diethyl amide grouping, indole nucleus, and the urethane residue. They are found variously in such compounds as: LSD, bufotonine, adrenochrome, mescaline, reserpine, and barbiturates.

Rheumatoid Arthritis

Several new synthetic gluco-corticoids are now being investigated, and it is certainly possible to increase several fold the anti-inflammatory effects by altering the structure of the molecule. The problem is to achieve this without also multiplying some of the undesirable physiological effects that occur. Inasmuch as prolonged treatment is essential to the management of this disease, evaluation of



(Illustrations represent actual crystals of 'Roche' vitamin A palmitate and acetate and of 'Roche' dry vitamin A acetate granules, under high magnification, using shadow technique.)

VITAMIN A COMES RIGHT FROM ROCHE

Roche has proved time and again that it is a source of vitamin A far superior to the livers of fish. Look at these advantages of 'Roche' vitamin A—stability • uniformity • no "fishy" taste or after-taste • high purity • constant availability • economy.

Roche produces all the popular types of vitamin A — the liquid types, the dry types, and the special types — to meet the most exacting requirements of purity for margarine and food manufacture, and the most rigid U.S.P. standards for pharmaceutical manufacturing — by the tons, by the famous Roche synthesis.

Roche assures the utmost excellence, the utmost experienced care, and the quality you require. Packaging designed with your needs in mind brings you vitamin A right, from Roche.

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Roche has all types of Vitamin A
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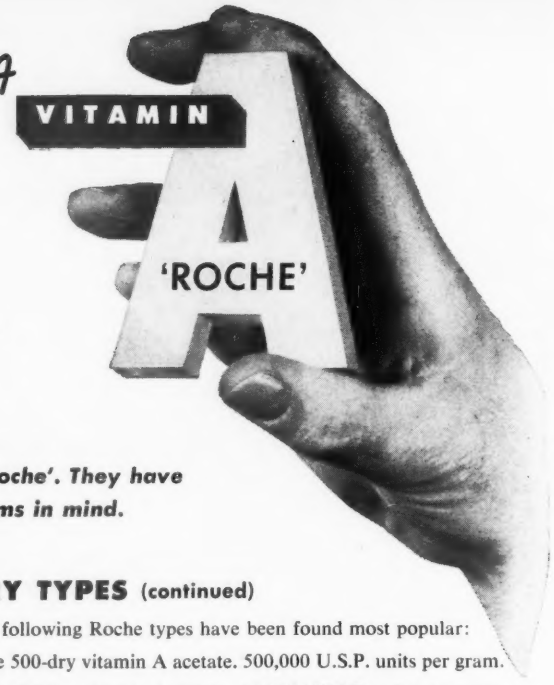
food products
cosmetic preparations



Take your choice of the following types of vitamin A 'Roche'. They have been made especially with your particular problems in mind.

LIQUID TYPES

Type P1MO vitamin A palmitate—1,000,000 U.S.P. units per gram, standardized by addition of edible vegetable oil. This type is a highly refined product containing well-proven stabilizing factors of the Roche synthesis. *Experience has shown that this type meets the great majority of requirements.*

Type P1MO/ BHA vitamin A palmitate—Same as type P1MO above plus antioxidant protection.

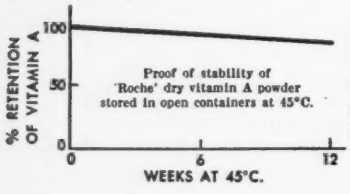
Type A1MO vitamin A acetate—1,000,000 U.S.P. units per gram, standardized by addition of edible oil. Contains well-proven stabilizing factors of the Roche synthesis.

Type P1.3 vitamin A palmitate—Ranging between 1,350,000 and 1,650,000 U.S.P. units per gram. Contains no oil addition. Ideally suited for oil-free preparations. Stability is similar to type P1MO.

Packaging—All liquid types of 'Roche' vitamin A are packed under inert gas in seamless containers. Nominal quantities are shipped in widemouth aluminum bottles. For large orders, a specially-designed aluminum transport can holding 50 kilos is recommended. A dispensing attachment is available.

DRY TYPES

'Roche' dry vitamin A acetate, and vitamin A and D_2 powders have great advantages.



First, dry vitamin A acetate 'Roche' has high stability in tablets, hard and soft gelatin capsules, and powdered food supplements.

Second, having an irregular surface the Roche product does not separate from other dry ingredients during mixing or vibration.

Third, Roche powders do not stick to machine dies and punches. Capping and spring do not occur during compression.

Fourth, extrusion loss is low. This advantage comes from the product's excellent resistance to the high pressures found in tablet making.

Powdered food supplements use 'Roche' dry vitamin A and D_2 for ease of manufacture.

DRY TYPES (continued)

The following Roche types have been found most popular:

Type 500-dry vitamin A acetate. 500,000 U.S.P. units per gram.

Type 325-dry vitamin A acetate. 325,000 U.S.P. units per gram.

Type 500 A-50D-dry vitamin A acetate and vitamin D_2. 500,000 U.S.P. units of vitamin A and 50,000 U.S.P. units of vitamin D_2 per gram.

Mesh Sizes: Each type available in two mesh sizes: No. 40 and No. 60.

Packaging—All types of 'Roche' dry vitamin A are packed in polyetheylene bags, with protective sealer, in drums and in 1 and 2 kilo tamperpruf metal containers. Small quantities in amber s.c. bottles.

SPECIAL BLENDS

Roche has various potencies of vitamin A in vegetable oil, alone or with beta carotene 'Roche' or vitamin D_2, according to your formula. These are widely used for fortifying margarine and other food products. With a Roche blend of vitamin A and carotene, processors have the advantage of *fortifying* and *coloring* their products in just one plant operation.

Custom-made blends of 'Roche' vitamin A and other oil-soluble ingredients such as vitamin E 'Roche' are also available.

These are packaged in batch size, sanitary tin cans or in bulk packings to suit your manufacturing operation.

Beta CAROTENE 'Roche'

Use 'Roche' beta Carotene to supply *safe, convenient* coloring combined with *nutritional* value for margarine, shortening, butter, cheese, yellow baked goods, edible oils, and other foods.

Beta carotene is the natural coloring matter of butter and other dairy products. It is a constituent of cereal grains, alfalfa, carrots, and other vegetable foods. 'Roche' beta Carotene imparts a *true* natural yellow color to your foods without any trace of green. 'Roche' beta Carotene adds nutritional value; theoretically, one gram equals 1.666,667 millions U.S.P. units of vitamin A activity. Extensive tests show that "Roche' beta Carotene has excellent color stability.

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these newer steroids from the long-term viewpoint is obviously impossible at this time. Search for a synthetic steroid with only anti-inflammatory action is being continued, but such a compound which is entirely free of undesirable physiological side-effects has not as yet been reported. Postpartum and placental serum, primaquine phosphate, quinacrine (Atabrine) hydrochloride, chloroquine (Aralen) phosphate, nitrogen mustards, aminopterin sodium, procaine hydrochloride given intravenously, para-aminobenzoic acid, adenosine triphosphate, heparin sodium, and others previously have been reported to show favorable therapeutic effects in rheumatoid arthritis. However, they have been largely abandoned for this purpose either because of excessive toxicity or failure to maintain what appeared to be early improvement. In several very recent reports chloroquine has again been described as a useful drug —W. P. Holbrook, D. F. Hill and C. A. L. Stephens, Jr., *J.A.M.A.* 164. 1469, 1957.

Dextro Propoxyphene Analgesic

In equal doses by weight propoxyphene hydrochloride and codeine phosphate were equally effective in reducing the discomfort of chronically ill patients. Measurable differences in effectiveness were observed by C. M. Gruber, Jr., (*J.A.M.A.* 164:966, 1957) when 65 mg. of propoxyphene or codeine were compared to 32.5 mg. of the same drugs. Codeine when given orally in doses of 65 mg. produced a significant number of undesirable gastrointestinal side-effects. Such reactions were observed much less frequently with the same dosage of propoxyphene. Over a two-year period no patients have shown a desire for, or need of, an increased dosage of the drug, nor was any true idiosyncrasy seen.

Treating Hypertension

Reviewing trends in the drug treatment of hypertension, as we see them today according to O. H. Arnold (*Germ. Med. Monthly* 2:219, 1957), it appears that too much attention is being devoted to the treatment of benign hypertension. It should never be forgotten that the benign form of arterial hypertension is a condition which does not as a rule reduce life expectancy materially, even if it makes death from cardiovascular causes more likely. The therapeutic optimism in benign hypertension is matched by a reticence in the use of ganglionic blocking agents in the treatment of malignant hypertension, although this constitutes the most signal advance which has been made in the therapy of hypertensive disease. Malignant hypertension has a notoriously bad prognosis, especially in untreated young adults. With modern therapy such patients cannot only be kept alive much longer, but can also be returned to work again, provided treatment is given soon enough before severe structural changes have become established. Admittedly, treatment is not without risk and requires extreme care on the part of the physician and intelligent cooperation from the patient. An ill-planned regime and careless prescribing of these highly active substances are likely to do more harm than good. Yet rational treatment often succeeds in resolving very severe retinal changes, improving renal function, and reducing heart failure, thus attaining aims which only a short time ago clinicians thought of as beyond their reach.

New Anticonvulsants

M. L. Gujral and Co-workers (*Indian J. M. Res.* 45:2 [April] 1957) tested a series of 2,3-disubstituted quinazolones for their hypnotic effects and toxicity. As some of them were also anticonvulsants, their quantitative assay in comparison with phenobarbital sodium and diphenylhydantoin sodium was performed by pentylenetetrazol seizure threshold tests and maximal electroshock seizure tests in rats. Groups of 30 animals were tested with various dosages of three drugs. QZ-2(2-methyl-3-orthotolyl-4-quinazolone) was the most potent anticonvulsant of the drugs tested. It was superior to phenobarbital against pentylenetetrazol-induced seizures and had 80 per cent of the potency of diphenylhydantoin against maximal electroshock seizures. QZ-1(2-methyl-3-phenyl-4-quinzolone) and QZ-4(2-ethyl-3-phenyl-4-quinazolone) were weaker than phenobarbital and diphenylhydantoin, but both of them also protected against both types of seizures.

Gout Treatment

Advances in the methods of treatment of gout permit effective control of the acute attacks and offer real hope that the advanced stages and late complications of gout can be prevented according to W. D. Robinson (*J.A.M.A.* 164:1670, 1957). Several effective methods are available for the treatment of acute attacks. Oral administration of colchicine remains the treatment of choice in the great majority of patients. Its successful use is dependent on promptness of instituting treatment, adequacy of dosage, and proper timing of the doses. Alternative reliable and effective methods in the relief of acute gout are intravenous administration of cholchicine, oral administration of phenylbutazone, and the combination of corticotropin given perenterally with maintenance doses of colchicine. The use of urate eliminants such as probenecid has no effect on acute attacks.

Treatment between attacks has the twofold objective: to decrease the frequency of recurrent acute attacks and to prevent or treat the deformities and disabilities of chronic tophaceous gout by inducing negative urate balance. A maintenance dosage of colchicine given orally is the most effective medication in reducing the incidence of recurrent acute attacks. Dietary restriction of food containing preformed purines is helpful in obtaining a limited degree of negative balance, but a much greater effect can be obtained with administration of urate eliminants. The use of urate eliminants is helpful in the treatment of tophaceous gout and is definitely of value in preventing the development of the advanced stages of the disease.

Anti-Alcoholism Drug

An anti-drinking drug for alcoholics less violent in its reaction than presently used Antabuse has been found. The protection it gives alcoholics is reported in the *Canadian Medical Association Journal* (Aug. 1) by Dr. John D. Armstrong, University of Toronto, and medical director, Alcoholism Research Foundation.

Called CCC, short for citrated calcium carbimide, the new compound is still undergoing clinical trials but appears to cause less of such distressing side effects as drowsiness, skin rashes and impotence, which have sometimes been noticed with the older drug.

Both drugs cause the body to react more or less violently within minutes after the patient has taken an alcoholic drink. They produce headaches, a pounding heart, a feeling of chest constriction and possible loss of consciousness.

—*Science News Letter*, Aug. 31, 1957

Strekacin (Squibb) is a free flowing suspension of streptomycin, kaolin, bismuth and pectin for the treatment of animal diarrheas and is available in one pint bottles.

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Compounder's Corner

Analysis of Cosmetics—A.O.A.C Meeting

A direct analysis of nail lacquer solvents that does not require separation of the solvents from other ingredients is one of the new analytical methods to be discussed by cosmetic chemists meeting in Washington next month. This application of gas-liquid chromatography will be presented before the Cosmetic and Color Section of the Association of Official Agricultural Chemists at their 71st Annual Meeting, October 14, 15, and 16.

Dr. G. Robert Clark, Director of the Division of Cosmetics, Food and Drug Administration, and chairman of the Cosmetics and Color Section, will preside.

A procedure using partition chromatography for the analysis of lipsticks will be described by M. E. Pietrak and S. H. Newburger, Food and Drug Administration. It is suited to analysis of lipsticks containing either castor oil or oleyl alcohol as the solvent for customarily used halogenated fluorescein colors.

A progress report on a continuing study of analytical problems with mascara, eyebrow pencils, and eye shadows will be made by Dr. Paul W. Jewel, of Max Factor and Company.

A paper on the application of ion-exchange resin chromatography to the analysis of shampoos containing alkyl sulfate detergents will be presented by Dr. Newburger.

The previously mentioned paper on the direct analysis method for nail lacquer solvents will be presented by J. H. Jones, C. D. Ritchie, and S. H. Newburger.

Papers will be published in 1958 issues of the *Journal of the Association of Official Agricultural Chemists*. Copies of the final program will be available around October 1 from Dr. William Horwitz, A.O.A.C. Secretary, Box 540, Benjamin Franklin Station, Washington 4, D. C.

Paste Cuticle Remover

Cuticle removers are usually aqueous-alcoholic solutions containing a relatively high proportion of caustic alkali. These highly alkaline solutions can easily penetrate the nail bed, where they may cause serious damage. Paste preparations can be used in place of these liquids, according to data given in German Patent 939,048, and these can be applied to a limited area as desired. The alkaline solution is thickened with a stable gum such as methyl- or carboxymethylcellulose or polyvinyl alcohol. The pH of the mixture should range from 8 to 8.5 and about 25 per cent of alcohol should be included. The gums are treated with swelling agents such as urea, thiourea or triethanolamine. An example is the following:

Methylcellulose	5.0
Triethanolamine	15.0
Potassium hydroxide	0.1
Alcohol	25.0
Water	54.9

Preserving Nonionic Cosmetics

Of the more than 50 substances and combinations studied by M. Barr and L. F. Tice (*J. Am. Pharm. Assoc.* Sci. Ed. 46:455, 1957) for their possible effectiveness as preservatives for solutions containing nonionic surfactants of the sorbitan partial fatty acid and polyoxyethylene ester types, the following were found to be effective: sorbic acid (0.10-0.20 per cent), phenylmercuric borate (0.007 per cent), phenylmercuric nitrate (0.01 per cent), phenylmercuric acetate (0.007 per cent), Vancide 89 RE (0.04 per cent), methyl Carbitol (3 per cent), hexylene glycol (3 per cent), and benzalkonium chloride (0.1 per cent).

It is believed that the failure fo phenolic substances to preserve the surfactant solutions is a result of complex formation between the phenolic groups and the polyether groups of the surfactants.

As a result of studies completed thus far, sorbic acid (0.2 per cent) has been found to be the most satisfactory preservative for products containing nonionic surfactants of the sorbitan partial fatty acid ester and polyoxyethylene ester types.

Sorbic acid is 2,4-hexadienoic acid. It is a white crystalline solid soluble in water to the extent of 0.16 per cent at 23.3°, the solubility increasing to 0.22 per cent in a phosphate buffer at pH 4.4 and to 1.02 per cent in a similar buffer at pH 5.9. The substance is more soluble in the presence of surfactants such as were employed in this study.

Gooding reported that sorbic acid is an excellent fungistatic agent. His results are in agreement with the findings reported in this paper that sorbic acid is effective in protecting products against molds.

Aluminum Allantoin Salts

Three aluminum salts of allantoin are being offered by the Schuylkill Chemical Company of Philadelphia, Pa. These are the aluminum chlorhydroxy allantoinate containing 26 per cent of aluminum oxide, 40 per cent of allantoin and soluble to the extent of 1.7 per cent in water to give a solution with a pH of 4.75; the aluminum dihydroxy allantoinate powder, insoluble and containing 17.69 per cent of aluminum hydroxide and 55 per cent of allantoin; and the aluminum dihydroxy allantoinate gel containing 8.39 per cent of aluminum oxide and 26 per cent of allantoin.

These salts, as well as other aluminum salts are covered by U.S. Patent 2,761,-861 issued September 4, 1956 to S. B. Mecca and assigned to the Schuykill Chemical Company. The patent describes these compounds as combining the activity of aluminum salts and of allantoin so that they may be used to exert combined healing action along with astringency and antacid effect when used internally, as in the treatment of gastric ulcers. Externally, they

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are useful in combining the healing qualities of allantoin with deodorant and antiperspirant, hemostatic and astringent action of aluminum.

Biology of Aging

The concept that aging is an endogenous process inherent in all living things and not basically dependent on stress and disease is increasingly accepted, although we still do not have sufficient data to choose finally between these alternatives or to conclude that a cell, organ, or organism placed in an optimal environment may not live indefinitely. The fact that maintenance of various species of animals on a limited diet will prolong life through delaying sexual maturation and prolonging growth still constitutes the strongest support for the view that aging is an endogenous process—a product of reduced growth potential or insufficient rate of protoplasmic reduplication. Although stress and disease are probably not basic to aging, there is, of course, complete agreement that the minimizing or eradication of disease, particularly the degenerative dieseases, will add many years to human life.

When we learn the basic mechanisms of aging, we may understand why various structures and functions of the human being reach their acme and begin to decline at different times in the life span. Thus aging begins with birth (or possibly conception) in terms of growth, with birth in relation to arterial elasticity, at 10 years of age in terms of acuity of hearing, at 15 years in relation to antibody production, and at 25 years in terms of neuromuscular function. Such data suggest that aging may be a multicentric phenomenon in man.

Life has been defined as an orderly functioning of enzymes, and altimately aging will probably be explained in terms of intracellular enzyme changes that in turn produce tissue, organ, and body alterations in the direction of decreased reserve, adaptability, and homeostasis. Accordingly, a number of enzymes have been studied recently in relation to aging. With few exceptions the results have been disappointing, but certain leads have developed. Thus the fumarase content and phenolsulfatase activity of the human aorta have been shown to decrease with age. Further studies of enzymes in relation to aging are urgently needed. This is also true for cell-membrane permeability.—G. E. Wakerlin, *J.A.M.A.* 163:950, 1957.

Antioxidants

In recent years two new compounds, both monophenols, have come into prominence as antioxidants for use in food products. These are butylated 4-hydroxyanisole (BHA) and butylated hydroxytoluene (BHT). The former is actually a mixture of two isomers, 2-*tertiary*-butyl-4-hydroxyanisole and the 3-*t*-butyl isomer. The butyl side chain makes the product a more active antioxidant than 4-hydroxyanisole (hydroquinone monomethyl ether) and also gives greater solubility in oils. Butylated hydroxyanisole has the advantage over propyl gallate and NDGA of being stable to heat. Added to vegetable oils such as peanut oil, it prevents rancidity in foods fried in the oils. BHA is stable under mildly alkaline conditions and shows no tendency to discolor white products.

Combinations of butylated hydroxyanisole with propyl gallate and citric acid have a powerful antioxidant effect. As these substances are all crystalline, they are commonly dissolved in propylene glycol so that the mixture can be incorporated easily in fats. The usual formula comprises butylated hydroxyanisole (20 parts), propyl gallate (6), citric acid (4) and propylene glycol (70). It is used at a concentration of 0.05 per cent to give 0.01 per cent butylated hydroxyanisole and 0.003 per cent propyl gallate in the fat.

Butylated hydroxytoluene is more accurately described by the name 2,6-di-*t*-butyl *para*-cresol, so it may be called either BHT or DBPC. The odorless food grade should be specified for use in cosmetic products. BHT is a good antioxidant for mineral oil and petrolatum as well as for fatty materials. These petroleum derivatives are much more resistant to oxidation than the fats, but they may develop a rancid odor on aging due to the presence of unsaturated impurities.

The two butylated antioxidants form synergistic mixtures. That is, the mixtures have a stabilizing effect which is greater than the sum of the effects of the two components when used alone. Mixtures of even greater activity result when the butylated antioxidants are combined with dodecyl gallate. This compound is a synergist for both BHA and BHT whereas propyl gallate is a synergist only for BHA. Ruys has developed an antioxidant mixture for general use based on the butylated phenols. The formula of the product, is shown below:

Antioxidant Composition

Butylated hydroxytoluene	10
Butylated hydroxyanisole	10
Dodecyl gallate	6
Citric acid	4
Hexylene glycol	70

Antioxidants usually are less effective in emulsions than in dry fats. Antioxidants of low oil solubility tend to migrate to the aqueous phase of emulsions. As all the above antioxidants are quite soluble in oils, their activity in emulsions should not be diminished on this account.

Cosmetic preparations which are subject to rancidity are likely to contain not one but several substances which are more or less unsaturated. For instance: a cream might contain vitamin A in addition to a vegetable oil and a monoglyceride derived from lard. If a single antioxidant were used in this cream it might stabilize one of the sensitive ingredients without having much effect on the others. The use of a mixed antioxidant provides better protection in complex compositions.—*Schimmel Briefs.*

Duponol XL

A new basic ingredient, "Duponol" XL surface active agent, designed especially for shampoos and cosmetics, has been developed by Du Pont's Dyes and Chemicals Division. It is a completely new high-foaming surface active agent, with exceptional emollient qualities and great affinity to hair and skin.

"Duponol" XL is a clear honey-gold, moderately viscous liquid with a pleasant, faintly spicy, natural perfume. It is completely soluble in water and safe to use in all proportions. Even when used undiluted, its affinity imparts a lingering softness to skin and hair in contrast to the drying and degreasing effect of many detergents.

The compatibility of the new compound with soap, as evidenced by little or no deterioration of the foam, suggests a wide use in bubble bath formulations. Even in hard water its foaming action cleans effectively and leaves the skin soft and fresh.

Signemycin V (Pfizer) in each capsule contains 167 mg. of phosphate buffered tetracycline hydrochloride activity plus 83 mg. of oleandomycin phosphate. The preparation is available in bottles of 16 and 100 capsules.

Furadantin I.V. (Eaton) consists of 0.6 per cent of Furadantin dissolved in polyethylene glycol 300. It is supplied in 10 cc. ampoules, each containing 60 mg. of the drug. The solution must be diluted with a sterile diluent before use.

(*Continued from page 301*)

be of histaminelike character, i.e., with the pharmacological action, though not necessarily with the chemical configuration, of histamine[10]. However, Menkin[11] suggested that the migration of leucocytes, due to an increase in capillary permeability in inflammatory processes, is not caused by histamine, but by a new substance, "leucotaxine"; the latter is thought to be involved also in edema which, too, depends upon an increased capillary permeability[12].

Irradiated *p*-aminobenzoic acid (PABA) has been considered by Rothman and Rubin[13] as a factor in erythema, at least in part. Their ideas are based upon the possibility of the formation of an imine from PABA under the action of ultraviolet light, imines being known to be possessed of irritant action. Actually, irradiated PABA solutions cause an inflammatory reaction upon intradermal injection, whereas nonirradiated PABA produces no such effect. This would appear to point to PABA as the light-absorbing agent in the skin, as well as the causative agent in erythema; yet it is a fact that no reaction is produced by irradiated PABA in the absence of oxygen, whereas oxygen deprivation during exposure to ultraviolet radiation does not inhibit subsequent development of erythema. Moreover, injection of irradiated PABA does not cause pigmentation.

If the release of a histaminic substance into the tissue is responsible for erythema, then one might infer that the application of an "antihistaminic" drug should have an inhibitory action upon this phenomenon. Such was the reasoning of Kurtin, Bierman and Yontef[14] who studied the effect of iontophoretic introduction into the skin of pyribenzamine upon its response to ultraviolet irradiation; on the basis of their findings they attributed an antihistaminic quality to pyribenzamine with respect to its capacity of prevention of erythema. However, this conclusion was challenged by Baer, Kline and Rubin[15] who proved that the protective action of pyribenzamine is due to the filtration by it of the ultraviolet wavelengths capable of producing erythema, rather than to any antihistaminic action. This is further supported by the observation that Benadryl, which is also possessed of antihistaminic action, displays only a limited ability of protecting against ultraviolet erythema; the explanation is that it shows but a moderate absorption capacity for the erythemal range[16].

Tanning

The pigment which develops following exposure to solar radiation consists of granules of melanin. According to Bloch[17], melanin forms from dihydroxyphenylalanine (DOPA) under the influence of a specific oxidative enzyme, the "dopa-oxidase." Frankenburger[18] expressed the early view that other phenolic protein constituents, such as tyrosin, may also form melanin, and that the enzyme, tyrosinase, or other oxidizing enzymes may promote the reaction.

In a comprehensive study of the tyrosine-tyrosinase reaction, Evans and Raper[19] concluded that tyrosinase is capable of oxidizing tyrosine to DOPA, and that the same enzyme then catalyzes the oxidation of DOPA to an indole derivative which polymerizes spontaneously with formation of melanin.

More recently, tyrosinase activity has been demonstrated histo-chemically in normal human skin by Fitzpatrick, Becker, Lerner and Montgomery[20,21]. Yoshida and Tagashi[22] confirmed that it could be accelerated by copper[23], and also by estrogen, in agreement with Whitlock's findings[24].

Another significant observation in the problem of the relationship between tyrosine and DOPA is that made by Arnow[25] who showed that prolonged ultraviolet irradiation of tyrosine causes the formation of traces of DOPA identifiable by colorimetric means. This is relevant to the observation of Lerner, Fitzpatrick, Calkins, and Summerson[26], who found that the enzymatic conversion of tyrosine to melanin is promoted by a trace of DOPA. Incidentally, the pituitary gland plays an important part in pigmentation through the agency of a melanocyte-stimulating hormone[27].

The latest word on this subject appears to have been spoken by Fitzpatrick, Lerner and Grupper[28]. They conclude that melanin is formed in the melanocytes (melanoblasts) where tyrosine is transformed into melanin by the action of tyrosinase, and that this reaction is activated by the coenzyme cuproprotein; radiation (ultraviolet, also roentgen and thorium X) is a factor which additionally influences this enzymatic process, as confirmed with the aid of C^{14}-tagged tyrosine[29]. The tyrosin-tyrosinase system exists in the normal skin of both the white and colored races[30].

At this point it is appropriate to refer to the tanning action of the longer-wave radiation, i.e., outside of the normal erythemal range. With the aid of the ultraviolet spectrum from an intense electric arc, Hausser[31] found that in addition to the wavelengths around 2980 Angstrom, erythemal and tanning activity is shown in the range of 3300 to 4200 Angstrom, with a strong maximum at 3800 and two weaker maxima at 3600 and 4080 Angstrom. The radiation around 3650 Angstrom produces immediate tanning, but several hundred times as much energy is required of such radiation as of that of 2967 Angstrom to produce a minimum perceptible erythema.

It may be assumed that Hausser's observations, as well as those of G. Henschke[32] and U. Henschke and Schulze[33], as to the tanning action of radiant energy of longer waves, probably apply to the darkening of preformed propigment. This assumption derives from the fact that tanning by long-wave ultraviolet does not occur in the absence of oxygen, whereas true erythema and "melanization" of the skin do not seem to be affected under similar conditions. Histological examination reveals that inflammation reactions, such as occur in the wake of shortwave irradiation, are not

(*Continued on page 377*)

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For use in a cold wave solution, the perfume, according to K. Bergwein (*Kosm.-Parf.-Drog. Rund.* 4:8, 1957) must have the following properties:

1. It must form a clear solution in these aqueous products.

2. It must be alkali-stable in the range of pH 9.3 - 9.5.

3. It must be free from metals, especially iron.

4. It must have good covering power for the ammonia and sulfide odor in smallest possible quantities.

The perfume can be made soluble by the addition of a nonionic surface-active solubilizer such as polyoxyethylene sorbitan monooleate or laurate. A 10 per cent solution of the perfume oil in the solubilizer is usually satisfactory.

In the alkaline cold-wave solution, the following aromatics are stable: alcohols, ethers, ketones, hydrocarbons and lactones. Not completely stable are aldehydes, esters, phenols and acids. Discoloration in the alkaline solution is caused by amino compounds (indol, methyl anthranilate) in the presence of aldehydes and ketones such as citronellal, heliotropin or acetophenone. Phenols cause discoloration with aldehydes in the presence of alkalies. Examples are eugenol, isoeugenol, safrol with vanillin or heliotropin. The corresponding phenol ethers, isoeugenol methyl or benzyl ether, are stable in alkalies.

Essential oils with a high content of aldehydes, such as lemongrass oil (citral, cassia oil (cinnamaldehyde), or phenols, such as clove oil (eugenol) will undergo reaction in the presence of alkali.

In spite of the incompatibility of many aromatics with one another, there are a large number of essential oils and aromatics that can be used to compound perfumes for cold wave solutions.

Small amounts of iron or other metals will cause discoloration and chemical change in cold wave solutions. The perfume oil should be tested for the presence of traces of metals and these should be removed by means of sequestering agents.

There are two possibilities in perfuming wave solutions: The odor can be modified by the ise of small amounts of herbal-aromatic or spicy mixtures or the odor can be covered by means of a strongly contrasting odor with a fresh fruit top note. Apple and peach blossom can be used in concentrations of one to 1.5 per cent.

The perfume selected, because of the complexity of reactions that can take place in cold wave solutions, must be tested for several months in the final product.

Odor Theory

R. W. Moncrieff (*P.E.O.R.* 48:345, 1957) believes that it is a sorptive process which has been shown to be responsible for the primary smell stimulus. For long there has been a recognized relationship between smell and adsorption; odorous substances have been recognized as easy to adsorb, and the best way of deodorizing air has often been to pass it through or over an adsorbent bed. Furthermore, adsorption is essentially a process of *concentration*, and the extreme sensitivity of olfaction to very high dilutions of an odorant is really only comprehensible if a process of concentration is involved in smelling. Such considerations as these led to experimental work being undertaken to identify the process of adsorption in smell. This work led to a great deal of supporting, but rather indirect evidence, concerned with the similarity of behavior towards adsorbents of odorants with similar smells, to relations between adsorption, olfactory adaptation and likeness and intensity of smells. All of these experimental results were easily explained on the basis that adsorption was the effective olfactory stimulus and would have been much less easy to explain otherwise. Finally there is the direct proof from the results of those experiments in which the olfactory surfaces of newly dead animals were shown to have excellent adsorbent properties, and also the proof positive when odorous air was deodorized by being passed through the nasal passages of an animal's head.

A knowledge of the mechanism of olfactory stimulation should be followed by rapid advances in the subject. Flavor depends largely on smell, and the scientific treatment of flavor should be much easier with a knowledge of the mechanism of the olfactory stimulus than it ever was before.

Oil of Hops

Dr. Faber, in *Parfumerie und Kosmetik*, 38:385, 1957, describes the properties and uses of oil of hops, unknown to most perfumers and seldom used in perfumery. The oil is obtained by the steam distillation of hops in a yield of 0.25 to 0.35 per cent. It is seldom available commercially and good quality oil is extremely rare.

To the dedicated perfumer, the odor of oil of hops is absolutely exciting. This extremely characteristic odor is hard to describe. It is harsh, herbal, aromatic and "bitter," if this word can be used to describe an odor. Some work has been done in determining the composition of the oil. The most important odor component is the hydrocarbon myrcene along with dipentene as well as cariophyllene and myrcenol, free and esterified with fatty acids. Some free acids, from formic to capric are also present, along with the very characteristic isovaleric acid.

The perfumer working with oil of hops will encounter surprises seldom encountered with other essential oils. As little as one to three per cent of a 10 per cent solution will make a harmonious composition out of a mixture without changing the odor type. Other compositions may include more than

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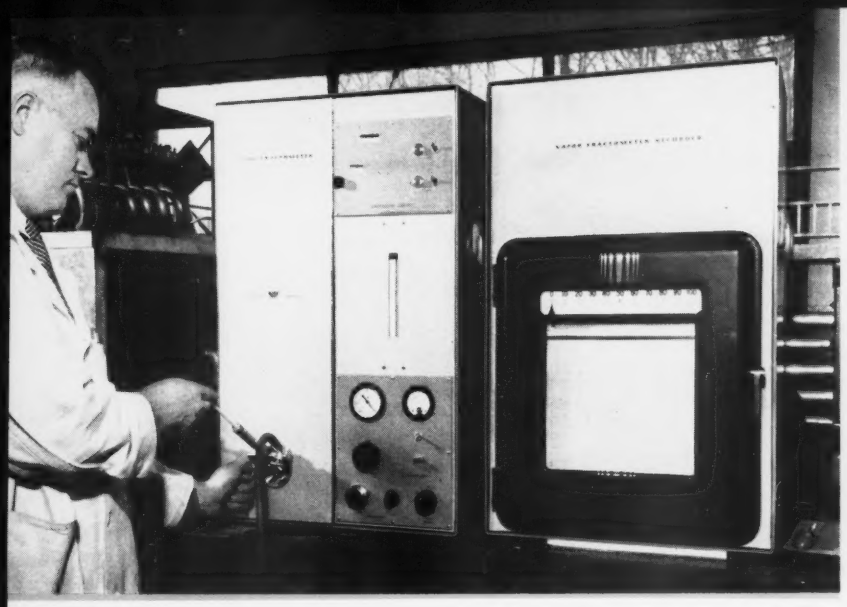

THE newest of instruments developed for the examination and evaluation of essential oils is the Vapor Fractometer and Recorder, shown above. The operation of this unit is, in principle, a chromatographic separation carried out in vapor phase. While its potentialities have not yet been fully explored, techniques are now being developed which will make this instrument adaptable to all types of essential oil analyses. We expect much from this new approach to the study of these basic materials and it is our opinion that accomplishments to date represent but a "scratching of the surface" of possibilities inherent in the fascinating work of our Instrumental Laboratory—an augury of considerable promise to those customers whose finished goods already benefit from the superiority of the FRITZSCHE products they now employ.

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5 per cent of the undiluted oil without becoming inharmonious. However, because of the enormous intensity of the oil, a 5 to 10 per cent solution should be used for experimentation. The effectiveness of hops oil in compositions depends less on the characteristic note of the oil than on the fact that it livens and exalts the composition without adding an unpleasant animal note.

Lilial

Lilial, a pure aldehyde with a powerful and diffusive odor recalling linden blossoms, is now being offered by Givaudan-Delawanna, Inc. On a smelling blotter its odor is long-lasting and highly diffusive. It is soluble in all proportions in benzyl benzoate, diethyl phthalate, fixed and mineral oils, practically insoluble in propylene glycol, insoluble in glycerin and soluble in 5 volumes of 80 per cent alcohol. Its oral toxicity is extremely low and Lilial is not a primary irritant, sensitizer or fatiguing agent. It is considered safe to use in contact with human skin in concentrations up to 2 per cent.

In a soap cake, Lilial retains its odor after six months and causes no more discoloration than geraniol. It is stable and causes no discoloration in emulsified creams, synthetic detergents and cosmetic powders.

The fundamental floweriness of Lilial suits almost all flower types and the product is not limited to use in linden blossom, muguet and lilac types. It is also suggested for use in violet, rose, jasmin and honeysuckle type compositions. In aldehyde complexes and perfumes with aldehyde top notes, Lilial has a notable blending and sweetening effect. This same effect in fancy perfumes that have woody, amber or mossy tones gives a modern touch while, at the same time, it gives an old fashioned velvety smoothness.

Azulenes

The azulenes are blue, violet or green hydrocarbons present in many essential oils or obtained from them by high-temperature dehydrogenation according to R. Philip, in a review in "The Pharmaceutical Journal." The parent substance, known as azulene, has been shown to consist of a five-membered ring fused with a seven-membered ring.

Azulene forms blue crystals (m.p. 85°). Camazulene, from chamomile oil, is 7-ethyl-1 : 4-dimethylazulene and forms blue-black crystals (m.p. 30°-31°). Vetivazulene, which occurs in vetivert oil as the ketone vetivone, consists of violet needles (m.p. 32°-33°).

In 1936 it was reported that of 260 essential oils tested, 20 per cent. contained azulene or azulene precursors, and Muller, by using a color test with *p*-dimethylaminobenzaldehyde, found that of 195 essential oils investigated, half of them contained azulene precursors. The following oils, to name but a few, have been shown to contain azulene: chamomile, cubebs, milfoil, eucalyptus globulus, cade (freshly distilled), copaiba balsam, cajuput, guaiacum wood, ylang-ylang, geranium, hops, pimento and wormwood.

The azulenes can be extracted from essential oils by the classical method of Sherndal, which entails shaking the oil with strong acids with which the azulenes form easily decomposable addition compounds. The azulene is recovered by dilution of the acid solution with water. A useful method of purification and characterization of the azulenes is by way of the complexes which these substances form with trinitrobenzene. The quantity of azulene in essential oils is usually small, but up to 10 per cent. may be found in chamomile, milfoil and wormwood oils.

Elucidation of the constitution of these substances was accomplished first by the Swiss workers Pfau and Plattner, who also described a method of synthesis. The synthesis of natural vetivazulene, obtained from vetivert oil by dehydrogenation, consists essentially in the addition of diazoacetic ester to a substituted indane followed by decarboxylation and dehydrogenation.

The increasing volume of literature in this field shows the interest with which the structure, synthesis and physiological action of these compounds and their precursors are being studied. The virtue of chamomile oil to soothe, to reduce inflammation and to heal has long been extolled. It was, therefore, significant that chamomile extracts had no such physiological action until they were distilled to form azulene. The active principle was found to be camazulene.

Tests on other azulenes, by using the inflamed eyes of rats, cats and humans induced by mustard oil, have shown that these substances also possess similar antiphlogistic properties. It is claimed that 2-*iso*propyl-*xx*-dimethylazulene has greater activity than natural camazulene. Cosmetic and therapeutic preparations for application to the skin and mucuous membrane have been improved by the addition to them of alkylated azulenes as anti-irritants.

Blue azulene has now been produced synthetically in commercial quantities. Small quantities have been incorporated in medical and toilet preparations, tooth pastes, lipsticks, suntan and hair lotions, soaps and gargles, and used in the prophylaxis of inflammatory skin conditions. Some success in the treatment of bronchial asthma in infants and children by the intramuscular injection of a 2 per cent. camazulene solution has been claimed by Blazso.

Orinase (Upjohn), the oral antidiabetic, has now been released for prescription use. It is available as 0.5 gram tablets of tolbutamide, in bottles of 50 tablets.

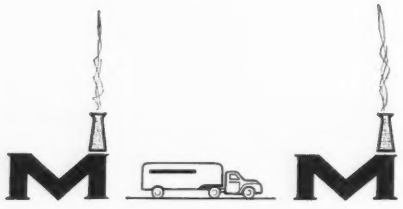
Cathomycin Syrup (Merck Sharp & Dohme) is a pleasantly flavored aqueous suspension containing 125 mg. per cc. of the antibiotic novobiocin as calcium novobiocin and is available in 60 cc. bottles.

Albumisol (Merck Sharp & Dohme) is normal serum albumin (human) and is now being distributed in two concentrations, as a 5 per cent solution and as a salt-poor 25 per cent preparation.

Mycostatin Ointment Veterinary (Squibb) is intended for the topical treatment of monilia infections in large and small animals. The ointment contains 100,000 units of nystatin per gram and is available in tubes of 15 grams.

Romilar CF (Hoffmann-La Roche) is a multiple-action formula for the symtomatic relief of colds and acute upper respiratory disorders. Each 5 cc. teaspoonful contains 15 mg. of Romilar Hydrobromide (antitussive), 1.25 mg. of chlorpheniramine maleate (antihistamine), 5 mg. of phenylephrine hydrochloride (decongestant) and 120 mg. of acetyl - p - aminophenol (analgesic-antipyretic). It is available (prescription only) in 16 ounce and one gallon bottles.

Adrestat (Organon) is intended to be a complete systemic hemostat for the prevention and control of bleeding. Each capsule or lozenge contains 2.5 mg. of adrenochrome semicarbazone (as 65 mg. of carbazochrome salicylate), 50 mg. hesperidin, 100 mg. ascorbic acid and 5 mg. sodium menadione diphosphate. The injectable form contains in each one cc. ampoule 5 mg. adrenochrome semicarbazone as 130 mg. carbazochrome salicylate. The preparation is available as boxes of 30 capsules, 20 capsules or 5 ampuls.



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Skin Research

Racial Sensitivity to Poison Ivy

Patch-testing and clinical studies by E. Epstein and E. R. Claiborne (*A.M.A. Arch. Dermatol.* 75:197, 1957) indicate that the person born in the Orient is much less susceptible to poison-oak or poison-ivy than are those born in this country. This seemed to be true for persons who had lived as long as 40 or 50 years in this country after coming from the Orient as children or adolescents. This difference is sufficiently marked to be significant. Furthermore, the difference between native- and domestic-born members of these races is marked also.

There is no difference in susceptibility between different racial groups born in this country. Therefore, pigmentation per se or other racial characteristics does not offer the source of protection against these plants. Rather, this factor must reside in the environment to which the individuals were exposed early in life.

It seems possible, therefore, that the mango of Hawaii and the lacquer plants of the Far Orient are more potent immunizers than are the domestic plants. These plants, which are members of the Rhus family, are as common in the Hawaiian Islands and in the Orient as poison oak, poison ivy, and poison sumac are in the United States. It is suggested that extracts of mango and lacquer may be used to produce immunity to poison oak or poison ivy despite the failure of extracts of the local plants to do so regularly. It may be necessary to administer these extracts in childhood to get the desired results.

Dopa Reaction

The effects of 38 chemicals on the dopa reaction of human epidermis were investigated by S. Iijima and K. Watanabe (*J. Invest. Dermatol.*, 28:1, 1957) using a simple slide glass technic.

Generally speaking, the dopa reaction of human epidermis is relatively insensitive to the action of chemicals.

It is interesting to note that hydroquinone, which in manometric experiments inhibits only the tyrosine-tyrosinase reaction and not dopa-tryosinase reaction, inhibits the dopa reaction of the skin. 4-Chlororesorcinol, which is the most potent inhibitor among the substances tested by Kull *et al.*, is not much more effective than others.

All SH compounds tested were found to be more or less inhibitory, the most powerful inhibitor being p-thiocresol. Sodium diethyldithiocarbamate inhibited the reaction completely at the final concentration of 1/6000 M, while ethylenediamine tetraacetate cannot abolish the reaction even at the final concentration of 1/60 M.

Cupric sulfate and ammonium molybdate inhibited the reaction completely at the higher concentration. In the case of the former, the deposition of dopa melanin was less than the control at all concentrations tested. The inhibitory action of ferrous, lead and silver salts was less remarkable. Sodium chloride and potassium chloride have little or no effect on the reaction.

In view of the fact that guanofuracin (5-nitro-2-furfurylidene aminoguanidine hydrochloride) causes depigmentation of the eyelid and eyelash after topical application, the effects of several derivatives of urea on the dopa reaction were tested. Aminoguanidine and diphenylguanidine were found to be inhibitory. The effect of guanofuracin itself is somewhat complicated and varies according to the mode and the length of the time of action.

Triacetin Fungicide

There is considerable variation in the response of the dermatophytes to 0.05 percent, 0.1 per cent, and 0.25 per cent triacetin according to S. G. Knight (*J. Invest. Dermatol.* 28: 363, 1957); *Epidermophyton floccosum* was the most sensitive while *Trichophyton mentagrophytes*, *T. rubrum* and *Microsporum lanosum* were the most resistant. The most resistant cultures, however, showed a degree of sensitivity by producing sparse, then growth and a much smaller mass of cells than the controls. Free acetic acid when incorporated into the medium in place of triacetin gives a similar pattern of inhibition in the range of 0.1 per cent to 0.25 per cent. The fungistatic activity of 0.1 per cent triacetin was enhanced by the addition of 5 per cent serum presumably because the serum esterase hydrolyzed the ester linkages of the triacetin to release the fungistatic acetic acid somewhat more efficiently than the esterase from the fungi. Small amounts of wheat germ lipase were substituted for the serum with the same results; in control experiments neither serum nor wheat germ lipase alone had any effect on growth.

The three dermatophytes tested can hydrolyze triacetin and the rate of hydrolysis is influenced by pH. *T. rubrum* showed maximum hydrolysis at pH 7.5 and a gradual decrease in hydrolysis as the pH was decreased to 3.5. *T. mentagrophytes* and serum showed a broad flat plateau of maximum hydrolysis extending over a wide range of pH. *M. audouini* was very actively hydrolytic in the range of pH 6.0 to 7.5 In general there was little or no activity at pH 3.5.

Because the esterase activity of the dermatophytes and of serum there can be no doubt that triacetin is hydrolyzed to acetic acid and glycerol when applied to an area infected by a dermatophyte. This hydrolysis is enzymatic and would obey the elementary laws of enzyme kinetics, the most important one in this instance is that the hydrolysis slows down and finally stops when the pH becomes too acidic and when the products accumulate. The enzymatic hydrolysis of triacetin becomes self-limiting because the chief product, acetic acid, decreases the pH to the point of inhibition.

When preparations containing triacetin are rubbed onto normal skin a slight

but distinct odor of acetic acid is noticeable shortly. This would indicate that the enzyme esterase is present on the surface of the skin.

The clinical results indicate that triacetin is not a "magic bullet" fungistatic agent. Triacetin probably inhibits and kills the dermatophyte by presenting it with a constant low level of the well-known mildly fungistatic agent, acetic acid. The fungistatic properties of triglycerides of other fatty acids is currently being investigated.

Testing Antifungal Compounds

Current laboratory methods do not provide an adequate guide for determination of the chemotherapeutic efficacy of antimycotic agents. Any one of a number of different *in vitro* fungistatic and fungicidal tests may be used to establish antifungal activity, but practically none takes into account the limited penetrability of the stratum corneum. For this reason, many potent antifungal agents are not clinically useful because they fail to reach the infecting organism within the horny layer. Addition of lipids, keratin, and plasma protein to the test medium does not correct this deficiency, since the infecting organism may be embedded in a combination of these components of damaged skin.

Obviously, the ideal method for measuring antifungal activity is an *in vivo* test. However, such results are subject to the animal's sensitivity to the test material, and evaluation of such data is difficult for inexperienced workers. Furthermore, clear-cut and reliable results are both time-consuming and expensive by this method.

The method described by M. M. Dolan, J. S. Ebelhare, A. M. Kligman and R. C. Bard (*J. Invest. Dermatol.* 28:359, 1957) permits measurement of the intrinsic antimycotic activity of a compound in a simulated clinical situation involving fungus-infected skin. Moreover, the physical and chemical factors affecting keratin penetration, and compound reactivity with skin components are included in the measurement, providing some parallelism to actual clinical conditions. Experimental data have revealed that whereas a large number of compounds exhibit marked antimycotic activity *in vitro*, only a few of these demonstrate activity by the method described. Such elimination of compounds which possess only limited activity under the clinical conditions simulated by this method permits awarding critical attention to a fewer number of compounds before initiating the laborious efforts of clinical evaluation. Logically, this testing procedure is the second step in screening antifungal agents for topical use, the first being the determination of antifungal activity by the conventional technics.

The method is relatively simple, and four or five compounds may be tested within an hour. Two technicians are needed, the first to withdraw the capsule from the test material while the second removes samples of scales and places them on the culture medium. No special equipment is necessary, other than the mesh-lined tissue capsules, and the test solutions may be prepared well in advance of the actual test. Since Sabouraud's agar plates are used to test for survival of the infecting organism, as many scales as desired may be cultured. The number of fungal colonies which are present from a definite number of scales cultured serves as a check upon the accuracy of the test itself and controls such variables as difference in size and possibly composition of the infected material.

Undecylenic acid, 5 per cent in polyethylene glycol, caprylic acid, 5 per cent in propylene glycol, and phenylmercuric nitrate, 0.2 per cent in water were fungistatic within 5-15 minutes' immersion time.

In addition to the antifungal substances, various concentrations of solvents often used in topical medicaments were tested. Polyethylene glycols and propylene glycol, in concentrations of 5–100 per cent, do not kill the organism within one hour's immersion time. Isopropyl and ethyl alcohols, at concentrations of 90 and 100 per cent, kill the organism within 15–30 minutes, while 70 per cent concentrations kill within 5–15 minutes' immersion time. 100 per cent amyl, butyl, decyl, and benzyl alcohols are effective within 5–15 minutes, while 100 per cent acetone kills the organism within 15–30 minutes.

Extract of Thuya

The results reported by E. Gaumond and J. Grandbois (*Can. Med. Assn. J.* 76:302, 1957) in the treatment of certain benign tumors, have been obtained by the use of two preparations containing the same active agent, *Thuya occidentalis* or cedar (white cedar). The white cedar, which grows well in the Province of Quebec, has been known from the remotest times to possess therapeutic virtues.

Two formulas have been used: one an ointment containing 10 per cent of tincture of thuya in hog's lard, according to a formula recommended by Perin; the other a collodion containing 50 per cent of the tincture, to which salicylic acid might be added or not.

The collodion preparation seems more effective than the ointment, since the authors obtained 80.9 per cent cure with it against 52.8 per cent, but it seems that it takes a little longer to act. The ointment usually shows results in the first two weeks, the collodion sometimes only after four or five, and in one case, 12 weeks. However, patients use the collodion more readily than they do the ointment. Although the collodion is handier to use than the ointment, it has the disadvantage of evaporating rapidly.

Thuya ointment, the only preparation used in such cases, cured all of three cases of juvenile warts; this is an excellent result. Two cases of condyloma acuminata were treated, one of them in a diabetic. Even though experience is limited, it seems that this form of treatment has the definite advantage over podophyllin that it is painless and without danger, the caustic effect being less marked. Out of four patients treated for plantar warts, two were cured.

Enovid (Searle) consists of a synthetic steroid, 17-alpha-ethinyl-17-hydroxy-5(10)-estren-3-one with 0.15 mg. ethinyl estradiol 3-methyl ether in each 10 mg. tablet. It is intended for the treatment of various menstrual disorders and Enovid-treated cycles may be anovulatory. It is available in bottles of 50 coral colored, scored tablets.

Theruhistin Syrup (Ayerst) contains 2 mg. of a new antihistamine, isothipendyl hydrochloride, in each 5 cc. The new antihistamine is designed to eliminate the drowsiness usually associated with these drugs and is available as 4 mg. tablets in bottles of 100 and 1,000 and as the syrup in 16 oz. bottles.

Releasin (Warner-Chilcott), hormone of pregnancy to make labor and delivery easier and less painful and to arrest premature labor, has undergone a second major price reduction. Originally introduced at $25 for one cc., the price was reduced to $15 and now to $8.65.

Salcort Delta (Massengill) in each tablet contains 1.0 mg. prednisone, 0.3 Gm. potassium salicylate, 5.0 mg. calcium pantothenate, 30 mg. calcium ascorbate, 0.12 Gm. dried aluminum hydroxide gel and 60 mg. calcium carbonate. It is supplied in bottles of 100 tablets.

(Continued from page 370)

found after irradiation with wavelengths over 3200 Angstrom. Incidentally, a portion of tan of solar origin may be due to a darkening of preformed pigment (possibly a leucoform), as suggested by Miescher and Minder[34], because of the greater proportion in the solar radiation of the range of 3200 to 4200 Angstrom than of wavelengths shorter than 3200 Angstrom; this may play a role in those cases when the sun is not in the zenith, e.g., later in the afternoon or earlier in the morning.

The relative position of the erythema and tanning curves is shown in Fig. 2[7]. The marked difference in the relative efficiencies of the short-wave and the direct tanning radiations is immediately evident.

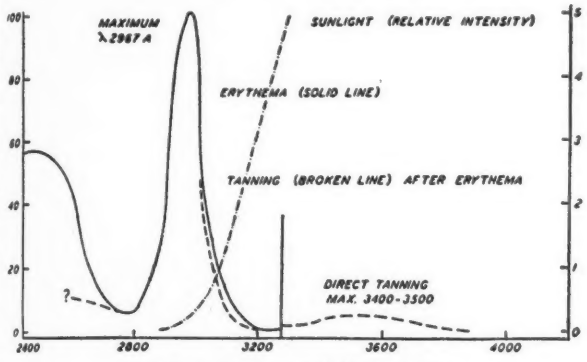

Fig. 2 Erythema and Tanning Curves

A subject of relevant interest is that of the time elapsing between exposure to erythemogenic radiation, and the appearance of erythema and pigmentation. As shown by Fig. 3[7], irradiation with wavelengths longer than 3200 Angstrom causes an immediate tanning response, whereas in the case of wavelengths shorter than 3200 Angstrom the tanning response occurs after the erythema has begun to subside; actually, the maximum of pigmentation almost coincides with the disappearance of erythema. Whereas the erythemal maximum is produced about 10 hours after irradiation, the maximum development of pigmentation occurs some 100 hours, i.e., 4 days later. It should be noted that pigmentation obtained solely through exposure to long-wave ultraviolet furnishes little or no immediate protection against the erythemogenic short-wave ultraviolet.

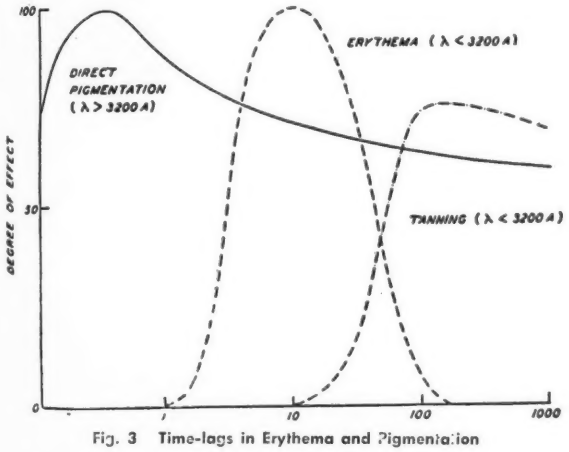

Fig. 3 Time-lags in Erythema and Pigmentation

Since tanning alone does not prevent sunburn, at least not in the initial stages of exposure, the question arises as to the nature of the protective mechanism which ultimately imparts to the skin a measure of immunity. This question was answered first by Guillaume[35] who showed that solar irradiation brings about a thickening of the horny layer of the epidermis; his observation was confirmed by Miescher[36], as well as by Blum and Kirby-Smith[37]. Since the *stratum corneum* is rather opaque to ultraviolet light, a moderate increase in its thickness will provide a marked increase in its opacity to erythemal radiation. Melanin also contributes toward absorption of the ultraviolet light, but only in the later stages when the pigment granules which are formed originally in the basal layer have migrated toward the horny layer. Eventually, the pigment is shed from the skin surface. The rate of shedding varies; thus, the arms lose the pigment more rapidly than the abdomen.

According to Schall and Alius[38], the maximum reduction of skin sensitivity appears normally about one week after exposure, while sensitivity is restored about 50 to 60 days thereafter.

Sunscreens

It is the mission of a sunburn preventive either to scatter the sunlight effectively, or to absorb a substantial portion of its erythemogenic radiation.

Opaque materials applied either in dry form, or incorporated in suitable vehicles, will serve as light-scattering agents; talc, kaolin, zinc oxide, calcium carbonate, magnesium oxide, and titanium dioxide belong in this class.

The true "sunscreens" which operate by absorption of the erythemal ultraviolet radiation represent a comparatively recent development. The first such cosmetic product appears to have been introduced in the United States in 1928; it contained, as its active agent, a combination of benzyl cinnamate with benzyl salicylate in an emulsion vehicle. Since then the number of sunburn preventives and related preparations has increased enormously.

An acceptable screening agent must satisfy a number of requirements. In addition to a capacity for absorbing most of the erythemogenic radiation, it must show no photolability; in other words, it must not undergo any intramolecular changes, nor participate in any chemical reactions (e.g., oxidation) that would affect its absorptive capacity. This is why the physical determination of the ultraviolet absorption spectrum of a given substance intended as a sunscreen will not supply any definitive information as to its stability under practical conditions of exposure which might, conceivably, reduce its effectiveness after a longer or shorter period of time, sometimes to the point of com-

plete ineffectiveness. Of course, a sunscreen must be neither toxic nor irritant; nor must it have a record of sensitizing action. It must be nonvolatile, and it must retain its activity in the presence of perspiration[39].

The absorptive capacity for the erythemal ultraviolet radiation of a given material may be expressed either in terms of obscuration or in those of transmission. Unfortunately, there is as yet no standardization of the thickness of the film of a screening substance to be tested for its absorptive capacity. The film of a sunburn preventive left on the skin certainly does not exceed 0.05 mm. in thickness; more likely it is not over 0.02 mm. Nonetheless, there is a tendency to run the physical absorption tests at thicknesses which would correspond to substantially heavier films than would be produced in practical application on the skin.

Different authors have suggested different methods for the direct evaluation of the effectiveness of sunscreens using the human skin. Since it would not be feasible to discuss them all here, Stambovsky's method[40] has been selected for illustrative purposes. It provides for the use of radiation generated by a quartz mercury lamp, and filtered with Corex D glass; the latter is practically impervious to radiation of 2800 Angstrom, but it transmits 50 per cent of energy of 2950 Angstrom and 72 per cent of 300 Angstrom.

The calibration is carried out first by determining the time required to produce the minimum perceptible erythema at a given distance from untreated, untanned skin. A 500-watt lamp will produce such erythema usually in one minute at a distance of 12 inches from the skin. To this end, the anterior portion of the forearm is used (which is rarely exposed to the sun and, therefore, retains its sensitiveness to erythemal radiation). Starting one inch below the elbow, three half-inch sectors are outlined with strips of adhesive tape. The sectors are numbered consecutively 1, 2 and 3. With a sheet of opaque paper, sectors 2 and 3 are covered while sector 1 is irradiated for 1 minute. Then sector 2 is exposed and finally sector 3; thus sector 1 receives a total exposure of 3 minutes, sector 2 of 2 minutes, and sector 3 of 1 minute. Readings are taken for about 10 hours at which time the test of the particular sunscreen is started.

The preparation under investigation is applied to the other forearm in the same manner as would be used in practice. Again strips of adhesive tape are attached; but this time five sectors are exposed. Using opaque paper to cover the other sectors, sector 1 is irradiated first for two minutes, then the paper is moved so as to expose sectors 1 and 2, and radiation is continued for 2 minutes, etc. In this fashion, at the end of the irradiation period, sector 1 will have been exposed for 10 minutes, sector 2 for 8 minutes, sector 3 for six minutes, sector 4 for 4 minutes and sector 5 for 2 minutes. If after 10 hours sector 2 shows a preceptible erythema while sector 3 shows no response, then the effect produced in sector 2 will be comparable to that in sector 1 of the control irradiation. Since the latter required an exposure time of one minute on the control arm against that of 8 minutes for sector 2 of the test arm, the light transmission appears to have been reduced by the sunscreen to one-eighth, i.e., 12 per cent of the original. Several such tests with any given substance will increase the accuracy of determining its protective efficiency.

However, it must not be forgotten that there is no complete analogy between the erythemal radiation of the sun and that of the quartz mercury lamp equipped with a Corex D filter. One important factor of dissimilarity is the occurrence in the solar radiation of infrared energy which induces hyperemia in the skin; this, in turn, produces a stronger erythemic response than would be produced in a non-hyperemic skin. As a matter of fact, preheating the skin with an infrared lamp to induce hyperemia will cause a 33 per cent increase in its sensitivity to ultraviolet radiation.

Similar considerations apply to other sources of ultraviolet light (e.g., carbon arcs) employed in other testing methods. This will explain the wide differences in the estimation of the protection afforded by sunburn preventives, as obtained by different methods.

As a general rule, the screening material is not applied in its pure state, but incorporated in a suitable vehicle which may be aqueous, fatty, or a combination of those mentioned, i.e., in the form of a solution, emulsion, a cream, etc. Obviously, the requirements as to skin tolerance and freedom from any undesirable features apply to the vehicle with the same force as to the "active" principle. In view of the prevalent vogue of "oiling" the skin prior to sunning, it is deemed pertinent to consider the information given in Table 4

Table 4
ULTRAVIOLET ABSORPTION OF SEVERAL OILS

	Per cent		Per cent
White mineral oil		Poppyseed oil	
Coconut oil	23	Cottonseed oil	26
Peanut oil	24	Sesame oil	39
Olive oil	23		

which shows that several oils of vegetable origin have a limited capacity for absorption of the erythemal radiation. Sesame oil is the most effective in this regard; by contrast, mineral oil appears to be totally devoid of any absorptive capacity[41]. The latter fact is significant in view of the extensive use on beaches of certain "baby oils" of mineral oil character, probably based on their reputed "blandness"; it is obvious that such oils can supply hardly any protection against sunburn. (*To be concluded*)

PHARMACEUTICAL AEROSOL SYMPOSIUM

(*Continued from page 303*)

satisfactory working arrangement between a would-be customer and a contract filler is possible and desirable.

The retention of consultants specializing in various

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(He sees to it that Dow propylene glycol exceeds U.S.P. Specs.)

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fields is a time honored practice in the pharmaceutical industry, and it can be effective in the field of aerosols.

The establishment of an aerosol laboratory is in the long run the most desirable way of handling aerosol research and development.

As laboratory facilities go, the expense is not excessive—$3,000 to $4,000 will outfit a laboratory with strictly aerosol equipment that could handle any and every problem in the field.

Once the end product development is completed, the commercial production of units must be accomplished.

The first consideration must be the output level required. There are two general levels of production where the economics of the situation call for the ultimate establishment of your own facilities. The first is when comparatively low production is projected and the second is when production in multiple millions per year is projected. One thousand a day or less of a small fill item would certainly be on the low side and three million or more per year of a large fill item would at least approach the upper breakpoint, although some companies feel it is not economical until ten millions or more units per year are in the picture.

The contract filler offers many advantages to his customers. He can and will stock everything that goes to make up a package. He will usually warehouse, drop ship and maintain inventory control. He will supply components from his stock and will absorb manufacturing losses occurring in the course of production. His is the worry of procurement for the most part, the maintenance of equipment, and physical handling of stock.

Purchasing economies by the filler can be passed on. Help with design of packages and other details of planning, are available from the competent filler.

A major advantage of using a contract filler lies in the fact that each package has a direct, specific and unquestioned cost.

The establishment of full production aerosol facilities will cost from approximately $30,000 up to $300,000 or $400,000. A certain amount of equipment is available for less than $30,000, but by the time all of the collateral facilities are in place it is pretty difficult to drop below this figure. Production rates will vary between 15 and 200 units per minute for the strictly production equipment, with the capital expenditure varying generally in direct proportion to capacity, although excessive automation or other refinement may alter this on occasion.

Personnel utilization must be taken into consideration in any decision in the matter of production facilities. Not infrequently, personnel are available from other operations in a plant for part time operation of a middle volume aerosol facility.

Space requirements for an aerosol production unit in itself are not particularly large—1,000 square feet being ample for moderate production type units. However, storage and finished stock account for proportionately large areas which necessitate careful planning if an efficient and adequate operation is to result.

A danger which has already overtaken a few companies, is the installation of high-capacity automatic equipment, and the employment and training of personnel necessary to run it, without considering what percentage of the work year would be taken up with normal, or even projected growth, production. The result of such ill-advised installations, in some instances, is the entrance into unplanned fields with unintegrated products, or even contract packaging, by companies who originally intended only to produce their own carefully planned products.

Aerosol Valves

Walter E. Beard, Jr. of Risdon Manufacturing Co., surveyed the various types of spray valves available.

The primary purpose of the valve is to regulate the flow of product from the container and it exerts a major effect on the character of the dispensed product. A product formulated to produce a foam can be dispensed as a spray or as a wet stream simply by the use of different actuators or push buttons on the valve. In actual practice efforts are made to select the proper propellants and ratios of propellant to product to produce a spray, a jet, or a foam. Nevertheless, variations of performance within these categories can be achieved by modifications in the structure of the valve.

Basic spray valves are the types used for practically all products that are soluble in the propellant. This includes insecticides, room deodorants, hair lacquers, colognes, paints, and dozens of other oil or alcohol base preparations. The spray pattern is a characteristic, narrow plume, with particles fairly evenly distributed to form a solid cone. Best performance is obtained when pressures are maintained above 20 psig.

Because of their large openings, foam valves may lend themselves for use with viscous materials such as syrups, creams, and ointments.

Frequently products are found that cannot be dissolved in organic solvents but which are soluble and stable in water. It may be possible to spray such products by the use of valves designed for the purpose.

Valves with "three-phase" actuators usually have an appreciably lower spray rate than valves with simple expansion orifices. The lower spray rate and the soft, wide cone spray pattern tend to make a significant reduction in the chilling effect of an aerosol spray on the skin.

Valves having a high seating pressure, with the seat close to the terminal orifice, appear to work best with formulations having much over 10 per cent solids. Many powders are effective at a 1 per cent level and can thus be handled by some standard or slightly modified space spray valves.

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valve seat, powder valves are usually operated wide open. This results in the discharge of a large plume of dry powder, maybe three feet long and a foot in diameter. The size of the plume can be reduced materially if the per cent solids is kept low enough to permit the use of a valve with a low spray rate.

Valves that deliver a measured quantity of spray at each actuation are called metering valves.

Sprays, foams, powders, and water base emulsions can be dispensed with varying degrees of success by metering valves. At this time no feasible method has been reported for using them with the three-phase systems.

Aside from delivering predetermined doses, and thus minimizing overdosage of active compounds, metering valves offer still another safety feature from the standpoint of aerosol packages for medical uses: they prevent the discharge of large volumes of comparatively high presusre gas into body cavities. This is particularly true for nasal and oral applications. Even when used on metering valves, inhaler actuators may have provisions for the relief of possible back pressures.

In addition to the standard requirements for valves, the pharmaceutical industry will unquestionably bring new ones to the valve manufacturer. Typically, the need for special actuators and applicators is being voiced. There are now available, or in the development stages, valves and actuators to facilitate the pressurized application of practically every type of product presently being administered with swabs, inhalers, insufflators, injection type applicators, squeeze bottles, or the old-fashioned spoon and drinking glass.

After selecting a combination of valve and propellant to deliver the product in the desired form, tests must be carried out to check the compatibility of the valve components with the formulation.

Aerosol Containers

W. Earl Graham, of Crown Cork and Seal Co., described types of containers now in use for aerosols.

The factors which determine the choice of a suitable container for pharmaceutical aerosols are varied and decision can be made only after careful technical and commercial considerations.

1. *Size*—Aerosol containers are available of one fluid ounce or less, up to 18 fluid ounces capacity.
2. *Cost.*
3. *Merchandising Appeal.*
4. *Pressure Characteristics*—The choice of container should be dictated by working pressure not only at the normal reference temperature of 70°F.; but also under conditions governing normal storage, shipment, and use of the product.
5. *Shelf Life (Corrosion Resistance) Properties*—This is a factor which, along with the product's stability, must receive the most thorough technical analysis before a product is released for marketing.

(Continued on page 384)

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Trade Literature

"Aerosols" Booklet

Continental Can Company has completed a new informational brochure, "Aerosols", which reviews the history and growth of aerosols, surveys the market and product field, outlines Continental's facilities and services, and provides a listing of contract fillers, valve manufacturers, and other aerosol industry suppliers.

Copies can be had from Department A, Continental Can Company, 100 East 42nd Street, New York 17.

1,2,6-Hexanetriol

A new technical bulletin on 1,2,6-hexanetriol has been released by Union Carbide Chemicals Company, Division of Union Carbide Corporation. This bulletin presents properties, shipping information, solubilities, performance data and applications.

1,2,6-Hexanetriol is a stable, high-boiling liquid that offers advantages in many applications where glycerol is now used. Its three hydroxyl groups on a long chain can easily be esterified or etherified to form special resins and plasticizers. Its moderate hygroscopicity and good plasticizing properties make it of interest in conditioning glues, water-soluble resins, cellophane and gelatin. Its solvent power, unctuous consistency and low order of physiological action have attracted attention to its use as a medicament carrier and base in water-soluble ointments and lotions.

For copies of this bulletin (1,2,6-Hexanetriol; F-40,066), write Union Carbide Chemicals Company, 30 East 42nd Street, New York 17.

Pallet Truck

A new improved model of their rider-type-low lift pallet truck is described in Bulletin 850, Supplement 1 available from The Raymond Corporation, 141-155 Madison Avenue, Greene, N. Y.

Changes incorporated in the 4000# capacity unit include redesigned reach rods beneath the elevating forks, specially tapered fork tip for easy pallet entry, and additional grease fittings for fast and easy maintenance of all lever assemblies. Features of the earlier model which allow the truck to right angle stack 48" pallets from a six foot wide aisle have been retained.

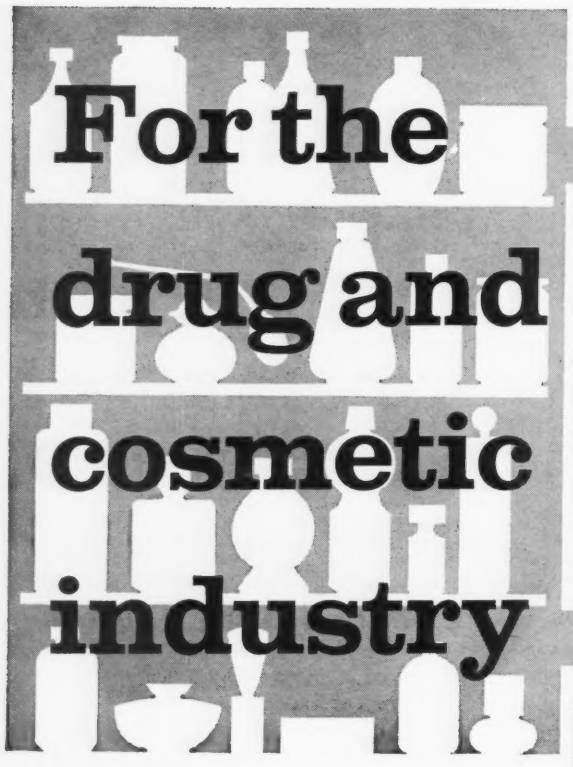
Laboratory Glassware

Glasco Products Company, subsidiary of Owens-Illinois Glass Co., has prepared its new laboratory glassware and clinical supplies catalog for the drug, surgical and hospital professions.

Comprising 24 pages, with handsome yellow and green cover, the catalog lists over 200 items each illustrated and completely identified for easy reference. Copies may be obtained from Glasco Products Co., 111 N. Canal St., Chicago 6.

Coal-Tar Products Imports

The United States Tariff Commission has issued a report on United States imports of coal-tar products entered in 1956 under paragraphs 27 and 28 of the Tariff Act of 1930. The report provides detailed statistics on coal-tar intermediates entered under paragraph 27, and on coal-tar dyes, medicinals and pharmaceuticals, flavor and perfume materials, and other coal-tar products entered under paragraph 28. The data in the report were obtained by analyzing invoices covering general imports of coal-tar products into the United States during 1956. Copies may be had from the Secretary, U. S. Tariff Commission, Washington 25, D. C.



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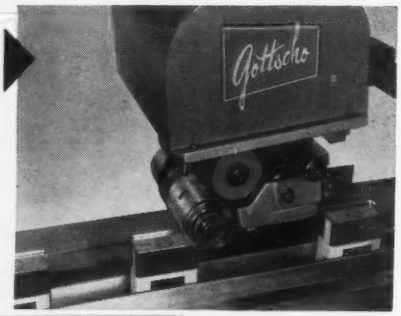
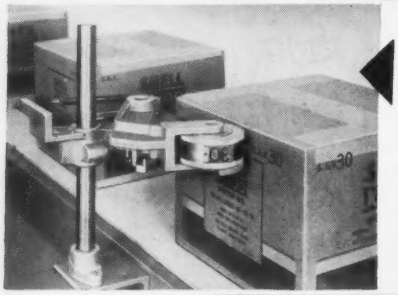
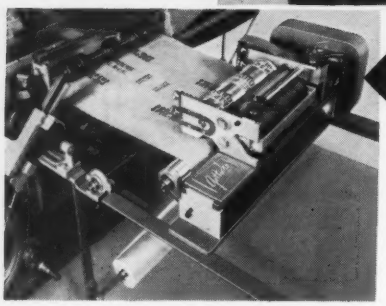
Top-Coder . . . imprints code-dates, other changeable legends on top surface of round or rectangular cans, canisters, jar covers, cartons, boxes. Attaches to conveyor or packaging machine. Locates imprints accurately even if container flow is irregular or intermittent.





Side-Coder . . . imprints side surfaces of folding cartons, set-up boxes, rectangular cans and canisters. Can be used to imprint codes, product identification, etc. simultaneously. Fully automatic, adapts to any mechanized production-line.

Bottom-Coder . . . portable, space-saving unit that imprints codes on bottom of jars, bottles, cans, etc. Imprint surface may be flat or concave, flush or recessed. Wheels right up to the line, can be moved about at will.



Web-Coder . . . compact attachment for wrapping and bundling machines that imprints any changeable legend up to 24" wide on the wrapper during the packaging operation. Fully automatic . . . assures precise register, consistent quality on films, foils, papers.

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The variety of tin coating weights and organic baked coatings gives industry a wide choice of interior linings suitable for the particular pharmaceutical product to be packaged. The objective in the choice of container specifications is a package which will adequately contain the product for its expected shelf life at the lowest possible cost.

Practically all designs possible in regular glass can be achieved with the plastic coated aerosol containers. Thus the display appeal of glass is combined with the shatterproof safety of plastic. Two, three and four-ounce capacity containers are available. They may be decorated by use of colored plastic coatings or by silk screening.

Such plastic-coated glass bottles will withstand internal pressures far in excess of the normal 15 to 25 pounds loading pressure. The choice between a coated and uncoated glass aerosol container should be made only after a thorough review of the growing technical literature on the relative serviceability and performance of both types.

Drawn aluminum containers of two- to four-ounce capacity may be interior coated by flushing or spraying while the exterior is coated and lithographed. More recently, larger aluminum drawn cans up to 12 fluid ounces, and as small as one-fluid-ounce or less capacity have been made available to the industry.

Plastic aerosol containers which have been considered thus far are of the nylon, melamine formaldehyde, and phenol formaldehyde types. They may be fabricated by blow molding or injection molding. Sizes generally considered have been in the one-,two-, and four-ounce range.

Wall thickness has been such as to produce rigid containers sufficiently pressure resistant, lightweight and non-corrosive. Non-permeability to solvents and propellents is an essential prerequisite for plastic containers.

Thomas D. Johnson, Jr. of du Pont pointed out that sales of aerosols have grown in ten years to 325 million units in 1956; in that year, pharmaceutical products were sold in 2.5 million aerosol units, so that the size of the market is not yet of great significance. The potential market, awaiting development of acceptable pharmaceutical aerosol products, is a worthwhile one, but not yet predictable.

David S. Tillotson of Pennsalt discussed typical aerosol propellant systems. Aerosols may be grouped as space, foam or three-phase preparations. In the first class, the high proportion of propellant, vapor pressure, viscosity and valve mechanism work together to produce a cloud or a wet surface spray. Particle size in the cloud ranges up to 50 microns while at 100 to 200 microns the spray is wet. Foam is achieved by a relatively low proportion of propellant, a foaming ingredient and the appropriate valve. The three-phase aerosol has three distinct layers, usually because of the presence of water as a component. Pharmaceutical products can exist in any of these forms. The propel-

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lants, fluorinated hydrocarbons, do not burn, are resistant to hydrolysis and have very low toxicity. They are selected for use, individually or in mixtures, on the basis of boiling point, vapor pressure, liquid density, specific heat and solubility.

SCC EUROPEAN TOUR

(Continued from page 305)

For luxury and elegance it surpassed New York's most expensive salons. There is a private room for the treatment of each customer. The rooms are named for famous Guerlain fragrances and decorated with magnificent simplicy in the mood of the fragrance. The polished femininity customers might hope to attain was epitomized by the women executives of Guerlain. At a somewhat more modest Institute of Beauty, Jean d'Athene showed us examples of his artistry applied to three luscious young models. He also demonstrated further how much champagne can contribute to international friendship.

That same evening, M. Schmuck and the directors of the Societe Francaise de Cosmetologie were hosts at a dinner dance that was memorable for the absence of speeches. Ted Coneybear was feted with an unexpected birthday salute and I had the pleasure of meeting Jack Pickthall, president of the Cosmetic Chemists of Great Britain, and Secretary and Mrs. Riley.

With this fine background the International Congress on Cosmetic Science settled down the next day to the business of presenting technical papers. The meeting room at the Bureau of Foreign Commerce provided an elegant gold and white setting for a long and diversified list of papers. From our delegation Ed de Navarre, Irwin Lubowe, and Sam Cohen presented papers. The glamorous woman who stole the show was the interpreter, a dynamic charmer from the U. N. staff who held advanced degrees in both chemistry and law.

The next evening I saw more of the scintillating French charm when M. and Mme. Jacques Riedweg of Givaudan, Paris, entertained a small group of eleven American guests at a fabulous dinner party at the Tour d'Argent.

We left Paris much too early Thursday morning, laden with souvenirs. Danny and Roy Hansell, the father and son pharmacist team from Indiana, were wearing French berets. Jean Morrish, wife of the technical director of Firmenich had a wonderful French hat. President Sab Strianse had a serious sinus infection and Sam Grant of Helene Curtis was developing one. I had a new hairdo and Harry Bennett had a new collection of trick gadgets.

In Geneva there was sunshine, a calm and orderly atmosphere, and a delegation from the Swiss Society of Cosmetic Chemists, headed by Kurt Pfeiffer. Almost immediately we felt at home. It was the Swiss National Holiday and we were honored to be received by the Mayor of Geneva in the city's villa. Some of the

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city officials joined the cosmetic chemists of Switzerland and the U. S. at dinner and later at the holiday parade and fireworks. Dr. Barbier of Givaudan, the Society's guest in New York last spring, kept up my spirits with his wit and his tales of Geneva.

To the Swiss a schedule is a thoughtfully worked out plan of events and our time there went with the smoothness of a fine Swiss watch. An excellent seminar in a modern building of the University of Geneva, opened Friday's program, continuing with a visit to the gleaming Firmenich factory, and a lovely outdoor reception on the magnificent Firmenich estate. (The Firmeniches lent it to Eisenhower during the Summit Conference and an autographed photo of Ike holds a place of honor in the living room of their 18th century villa.) Saturday evening Tokalon International held a dinner on a mountainside far above Geneva. At the dinner the U. S. delegates presented a watch to Bob Kramer for his devotion to our comfort and progress during the trip. The surprised expression on his face as he heard Dr. Lubowe's speech showed how very pleased he was. Sunday we were received by the governor of Valais, one of Switzerland's most prosperous cantons, long famous for its white wines and becoming important as a source of cosmetic ingredients. Arval Laboratories of Valais and the Swiss Society were hosts at a Swiss-style picnic on Mont Crans, a peak facing the Alps' highest mountain. Monday the seminar continued, there was a tour of the fine Givaudan plant, and M. Xavier Givaudan entertained the group at his home. The Givaudan villa, mellowed with age and tradition, had a warm and comfortable at mosphere, to match its owner's personality. Tuesday morning the schedule called for a visit to the European Center for Nuclear Research at Geneva but I couldn't pass by the opportunity to explore Geneva's tempting gift shops.

Geneva is such a perfect city and we had made so many warm friends that I felt nostalgic about saying good-bye to people like Kurt Pfeiffer, Dr. Barbier, and Tom Pritchard (the "displaced American boy" who directs Tokalon's technical operations in Paris). But in London a few hours later there were more friends—SCC officers Pickthall and Riley and Dr. and Mrs. Bob Marriott at the airport; Dr. Anthony James (winner of our Society's Special Award for his work on gas chromatography), and R. T. Dobson at the British SCC reception. It was great fun to meet Mrs. Pickthall and Mrs. Dobson and Mrs. Riley again and to exchange opinions about woman's place around the world.

Mrs. Marriott entertained the women in our group for the next three days with trips to famous English country homes. I spent those three days at the Royal College of Surgeons trying to follow the International Symposium on the Biology of the Hair. The working chemists such as Murray Berdick of Evans Research and Development and Steve Goff of Toni said it was a significant scientific meeting. To me as the Society's press representative it was a rare opportunity to observe the British journalists at work. They published several humorous articles about baldness that were connected to the Symposium only by timing and by the mentions of famous scientists at the Symposium, like Rothman of Chicago and Montagna of Brown University.

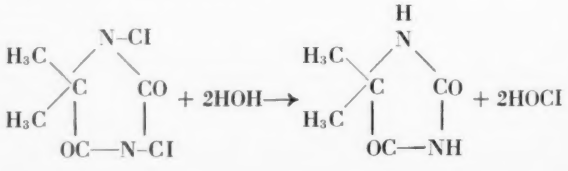
Interspersing the serious presentations of pure research there were receptions by County Laboratories (the financial angels of the Symposium) and by the Toilet Goods Producers Association. I enjoyed some spirited commercial discussions with the Managing Director of County Laboratories and Brylcreem; also with Ray Stetzer of Revlon, and with Kreider and Middleton, U. S. and English research directors, respectively, of Chesebrough-Pond's. The sponsors of the Symposium, the British Society for Research on Ageing, also enlivened the scientific proceedings with a banquet which showed the American humor of Rothman and Montagna and the British sparkle of Bob Marriott, Sir Frances Frazier, and Geoffrey Bourne to best advantage. We Americans from the SCC group owed our presence to Dr. Marriott; he had told us at the 1956 seminar in New York about County Laboratories' support of the Symposium and suggested that we send some representatives. From that, Bob Kramer developed our trip, making it an opportunity to accept many long-standing invitations from cosmetic groups abroad.

It was like a short lifetime packed into seventeen days. One of its greatest rewards was getting to know 50 other wonderful people who were once just familiar faces at semi-annual meetings. Another was the satisfaction of representing America's booming cosmetics industry and its interest in scientific and technical progress.

DIMETHYL HYDANTOIN DERIVATIVES

(Continued from page 307)

Dichloro dimethyl hydantoin is a white powder melting at 130°C and will react with water to release hypochlorous acid slowly.



It is widely used in the newer, dry-packaged household bleaches and in detergent cleansers and germicides. The decrease in the tensile strength in the fabrics bleached with it is very much less than that resulting from the use of the older bleaches. It is replacing other compounds such as Chloramine T and calcium hypochlorite in germicidal compounds.

Now let us consider in greater detail how these compounds are used in various cosmetics.

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U.S.I. CHEMICAL NEWS

September ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1957

Protein Nutrient Balance Stressed in Newly Revised Study of Amino Acids

The role of amino acids in maintaining protein quality in poultry and livestock is given special emphasis in the fourth edition of "Proteins and Amino Acids in Animal Nutrition", by Dr. H. J. Almquist, recently published by U.S. Industrial Chemicals Co.

Considerably revised and expanded, the 32-page reference work includes information on the latest research in the field of amino acids. Tables on the amino acid composition of common poultry feedstuffs have been enlarged, and several pages have been devoted to the effects on protein quality of heat treating soybean meal.

Copies of this useful reference work can be obtained from U.S.I. sales offices or by writing to the Editor, U.S.I. Chemical News.

Field Ion Microscope Uses "Matter Waves" To Visualize Atoms

A new instrument called a field ion microscope substitutes the incredibly short waves associated with atomic nuclei for those of visible light to resolve the images of atoms in metals.

In principle the microscope is a very simple device, resembling a TV tube. It has a fluorescent screen and a fine tungsten needle corresponding to the electron gun that paints the picture on the TV screen.

A high voltage strips helium atoms of their electrons, and their nuclei then drift to the point of the needle. A powerful electric field applied between the tip of the needle and a second electrode in the tube hurls "matter waves" associated with the nuclei against the screen. Here the atomic pictures appear at a magnification of 10 million diameters.

The technique is presently limited to the study of hard, simple metals, but these may serve as models for the study of others.

Molded Polyethylene Drums Pass Army Chemical Corps Rough-Handling Tests

Polyethylene Containers in Steel Overpacks Promise Easier, Safer Handling and Storing of Corrosive and Sensitive Materials

A series of rough-handling evaluation tests of four types of overpacks carried out by the Army Chemical Corps indicates that containers of molded polyethylene in steel overpacks can reduce the costly breakage often experienced in shipping corrosive and sensitive materials.

Breakage sometimes exceeds 10% when material of this kind is shipped in boxed carboys and carboy bottles. This can be reduced considerably by polyethylene packaging according to a recent article in "Armed Forces Chemical Journal" by Kenneth D. Brunelli, Chemical Warfare Laboratories, Army Chemical Center, Md.

Used 18 Drums In Various Sizes

To make its evaluation the Army Chemical Corps used eighteen molded polyethylene drums in 55-, 30-, 15-, and 5-gallon sizes, encased in overpacks. These overpacks were open-flange steel drum, solid-head steel drum, open-flange plywood drum, and wirebound crate. Also included were two molded polyethylene drums without overpacks.

Tests were conducted according to the standard procedures of the Chemical Corps for material for this use, and consisted of (1) a two hour vibration test, performed on all plywood overpacks and half of the steel and wirebound overpacks; (2) a six foot free fall onto concrete; (3) an incline-impact test, performed on the overpack units only; and (4) a leakage test. All containers were filled with water to 98% of capacity.

Polyethylene Units Showed High Degree of Burst Strength

Polyethylene units without overpacks showed a high burst strength. They withstood the drop test, including a drop onto a 4 x 4 timber from a height of over six feet.

MORE

Defense Needs Help Define Role of Chemical Industry

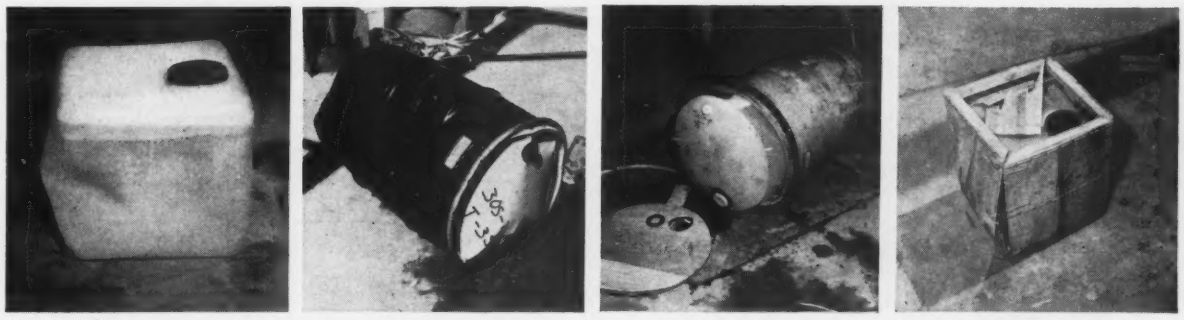
The chemical industry's awareness of defense needs is important to its own prosperity and the nation's survival, it was pointed out at a recent meeting of the Chemical Buyers Group of the National Association of Purchasing Agents.

This awareness is important to the industry, because new military uses for chemicals often point to profitable commercial applications.

It is important to national survival in case of attack, since much of the defense program depends upon continued production of chemicals for military equipment and civilian supplies. Awareness of recovery plans for industry will aid in a faster return to production and orderly flow of materials to defense programs, a government spokesman said.

The chemical industry is being encouraged to plan for continuity of management, to store plant designs, production techniques, research data, and other essential records, and to provide for plant disaster control.

Polyethylene Drum in Steel Overpack Reduces Breakage



These are representative views of combination containers following rugged tests by Army Chemical Corps. (A) Five-gallon molded polyethylene drum tested without overpack is still intact after drop. (B) Thirty-gallon polyethylene drum with open-flange steel overpack is still intact following a six-foot drop on a 4″ x 4″ timber. The leak that developed at plastic plug closure was readily stopped by tightening closure. (C) The drum of 55-gallon capacity with plywood overpack splintered following diagonal drop. (D) Drum in wirebound crate is still serviceable after three drop tests.

ADVERTISEMENT—*This entire page is a paid advertisement* *Prepared by U. S. Industrial Chemicals Co.*

September ★ **U.S.I. CHEMICAL NEWS** ★ 1957

CONTINUED

Polyethylene Drums

The polyethylene drums in combination with the steel overpacks gave the best protection to their contents, the report said. These overpacks were, however, deformed during the tests.

All of the plastic drums in the steel overpacks came through undamaged except for one 5-gallon size, which was punctured by the steel handle of its overpack.

The plywood and wirebound crate overpacks splintered under the rough usage, and the nails and staples of the plywood overpacks punctured the plastic.

Although leaks developed at the plastic plug closures following the drop tests, the leaks were stopped in every case by simply tightening the closure.

Structural Failure Noted Only in One

Of the twenty polyethylene drums tested, structural failure was noted in only one—a split along the top rim of a 30-gallon drum with plywood overpack.

As a result of these tests, it is reported that the Chemical Corps has recommended consideration of polyethylene drums in steel overpacks to replace glass or ceramic liners in rigid shipping containers for corrosive and sensitive materials that are compatible with polyethylene.

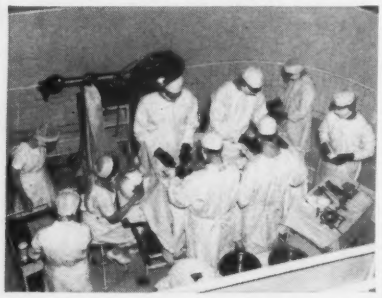
New U.S.I. Data Sheets On Organo-Aluminum Compounds Available

Data on four new organo-aluminum compounds, now available from U.S.I. in pilot plant quantities, are contained in recently published technical data sheets. The properties of ethylaluminum and methylaluminum sesquichlorides, trimethyl and triethyl aluminum are described in four separate sheets.

The sesquichlorides are not true chemical compounds but mixtures of alkyl aluminum dichlorides and dialkyl aluminum chlorides.

Trimethyl and triethyl aluminum are being tested as ignitors and fuels for jet engines. The entire group also shows possibilities as polymerization catalysts and as intermediates for chemical synthesis.

Titanium and Zirconium Studied for Surgical Uses



Titanium and zirconium have received more and more attention as materials for special surgical appliances, according to recent literature.*

Treatment of simple fractures is reputedly successful using titanium in a multiple plate technique without plaster immobilization. Tests on laboratory animals indicate that biological tolerance is high.

In one reported test, titanium discs were inserted into muscle, and the reaction compared with controls of tantalum, sterling silver and phosphobronze. After seven months the titanium was found to be inert and enclosed with a fibrous tissue capsule.

Lightweight, ductile zirconium has been tested for suturing, pegs, screws, and skull plates. Zirconium compares well with tantalum, it was said, causing no measurable reaction in muscle fascia, bone, or brain, and proved superior to silver. Hemostatic brain clips of zirconium can be flattened more uniformly and hold better than those made of tantalum.

In general, comparisons between tantalum and silver and stainless steel on the one hand, and titanium and zirconium on the other, reveal net advantages for the latter two in terms either of corrosion resistance, weight, elasticity, ductility, or cost.

**References*

Surgery, 39: *470-3 (1956)*; *Surg. Gynecol. and Obst.*, 87, *212 (1948)*; *Jour. Neuro. Surgery*, 5: *359-363 (1948)*; *Jour. Neuro. Surgery*, 5: *342-348 (1948)*; *Surg. Gyn. & Obst.*, 71: *598 (1940)*; *J. Bone and Joint Surgery*, 33-A: *473 (1951)*.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U. S. I.

An antiseptic coating material can be applied to objects which are handled by the public but seldom washed. It is applied by dipping, spraying or brushing, is useful for many personal articles as well. **No. 1271**

Continuous sodium dispersion technology is described in a new USI brochure. Contains latest information on time-saving continuous preparation of dispersers. **No. 1272**

A strippable coating is available as a protection for metals and other surfaces against alkali and acid solutions, plating solutions, etc. Can be sprayed, brushed or rolled on. Thick coating is reusable. **No. 1273**

Three controlled-viscosity release agents for rubber and plastic molding and for die casting of certain alloys have been developed. They are said to be odorless, smokeless, non-corrosive, non-toxic. **No. 1274**

An aerosol dispenser for gibberellin, a new plant growth stimulant, has been developed. A glass vial with a metered valve provides measured dosages, is said to be both convenient and accurate. **No. 1275**

New developments in laboratory equipment now commercially available include corrosion testers, refrigerated centrifuges, stainless steel refrigerators, test cabinets, magnetic stirrers. **No. 1276**

The technology of liquid metals is discussed in a recent collection of papers now on sale in book form. The work deals with many aspects of the subject from the standpoint of the chemical engineer. **No. 1277**

For joining, filling, cladding, and surfacing masonry materials, three new plastic compounds are available. A brochure describes properties of the compounds and gives instructions for their use. **No. 1278**

Simple castings for atomic shields can be made from a new polyethylene-lead compound. The ratio of polyethylene to lead is variable for effective shielding against specific types of radiations. **No. 1279**

The making of glass-reinforced epoxy impressions is discussed in a new booklet. Applications of this widely used system are found in metalworking and model and pattern reproduction fields. **No. 1280**

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Esters, Ethers and Ketones: Normal Butyl Acetate, Diethyl Carbonate, Diethyl Oxalate, Ethyl Acetate, Ethyl Ether, Acetone.

Intermediates and Fine Chemicals: Acetoacetarylides, Ethyl Acetoacetate, Ethyl Benzoylacetate, Ethyl Chloroformate, Ethylene, Ethyl Sodium Oxalacetate, Sodium Ethylate solution, Urethan USP (Ethyl Carbamate).

Animal Feed Products: Calcium Pantothenate, Choline Chloride Products, Curbay B-G® 80, Special Liquid Curbay®, DL-Methionine, Niacin USP, Riboflavin Concentrates, Vitamin B_{12} and Antibiotic Feed Supplements, Vacatone® 40, Vitamin A, D_3 and K_3 Products, Antioxidant (BHT) Products.

Pharmaceutical Products: DL-Methionine, N-Acetyl-DL-Methionine, Riboflavin USP, Urethan USP, Intermediates.

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The two hydantoin derivatives which are being used in cosmetic applications are monomethylol dimethyl hydantoin formaldehyde resin and monomethylol dimethyl hydantoin. Monomethylol dimethyl hydantoin is used in shampoos and is covered by U.S. Patent 2,773,834. The inventors found it very effective as a preservative for inhibiting bacterial and mold growth and preventing the shampoos from developing an unpleasant odor or darkening in color even on long standing. The shampoos referred to in the patent are those containing anionic sulfate and sulfonate salts, such as lauryl sulfate, sulfated coconut oil monoglyceride, alkyl aryl sulfonates, etc.

Monomethylol dimethyl hydantoin is effective in cream, paste or clear liquid shampoos and it has been found that between 0.1 and 1 per cent by weight gives excellent results. It may be incorporated from a prepared 25 per cent aqueous stock solution. The following are two examples:

U. S. Patent 2,773,834
EXAMPLE 1

		Per cent
Detergent[1]		20.550
Sodium Chloride		0.890
Lanolin		0.470
Sodium Benzoate		0.235
Methyl p-hydroxy benzoate		0.140
Stearic Acid		6.580
Potassium Hydroxide (34.2 per cent)		4.035
Lauric-myristic diethanolamide		1.500
Monomethylol Dimethyl Hydantoin		0.100
Perfume		0.295
Water	To Make	100.000

[1]Sodium lauryl sulfate

EXAMPLE 2

(The following is a satisfactory paste shampoo composition:)

Detergent[1]		30.00
Sodium Chloride		12.00
Disodium Phosphate		1.50
Titanium Dioxide		0.40
Sodium Benzoate		0.25
Methyl p-hydroxy benzoate		0.15
Lanolin		0.50
Monomethylol Dimethyl Hydantoin		0.50
Perfume		0.40
Water	To Make	100.00

[1]Sodium salt of sulfated monoglyceride of hydrogenated coconut oil fatty acids. It contains about 10 per cent by weight of sodium sulfate.

This property of monomethylol dimethyl hydantoin of releasing formaldehyde very slowly and the stability and ease of its use makes it worthy of investigation as a preservative in creams, lotions and other cosmetic preparations. Freedom from formaldehyde odor makes MDMH a very convenient raw material to use industrially. Its alcohol solubility suggests possible use as a deodorant in aerosol preparations, and as an ingredient in deodorant sticks. The following suggested deodorant cream containing monomethylol dimethyl hydantoin and hexachlorophene may be of interest:

Deodorant Cream

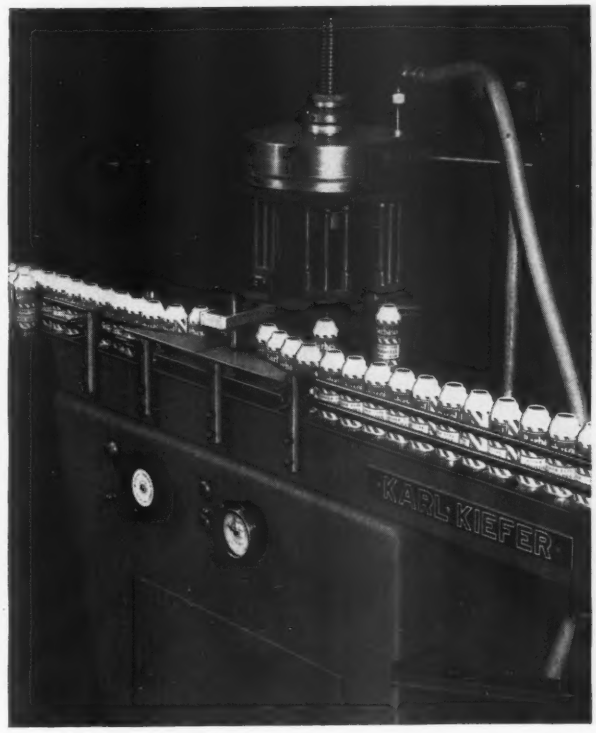
	Per cent
"Aldo" 28*	15.00
Mineral Oil	3.00

(Continued on page 392)

Kiefer

CADET MODEL

VARI-VISCO FILLING MACHINE



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Reader's Questions . . .

After-Shave Lotion: *Do you have any observations to make with respect to the formulation of an attractivee and effective after-shave lotion?* BOISE.

An after-shave lotion is basically an alcohol astringent, but it can certainly be more than this; it ought to contain an acid buffer system and a skin conditioning agent. The first will assist the skin in returning to its slightly acid condition after the action of the alkaline soap and the skin conditioner can not only make the skin seem smoother but it will also soothe it after razor abrasion. It seems to me that menthol and perfumes are overdone in a good many shave lotions. Menthol should be used in reduced amounts and flowery and exotic odors could well be modified by our old standby witch hazel. A typical mixture might then include alcohol SDA 40, 40 per cent; aluminum chloride 1.0 per cent; acetic acid 1.5 per cent; sodium acetate 0.5 per cent; soluble lanolin derivative 2.0 per cent; glycerin 3.5 per cent; witch hazel 20 per cent; perfume 0.25 per cent and water to make 100 per cent. The usual green color is not bad, but by no means compulsory.

Hair Lacquer: *Can you provide us with suggestions for the preparation of a hair lacquer to be sprayed on the hair in a non-aerosol form, since we do not have available facilities for this kind of packaging?* COSTA RICA.

Your hair lacquer should consist of a suitable gum dissolved in an alcohol-water mixture to assure rapid drying. Polyvinyl pyrrolidone should be just as suitable for your spray product as it is in pressurized formulations, since it is soluble in both alcohol and in water, and about two per cent in the solution should be satisfactory. The solvent should consist of equal parts of alcohol and water, with about one-half per cent of glycerine to act as a plasticizer for the gum and retard or prevent flaking. A soluble lanolin derivative may be advantageously included in the formula. To obtain a satisfactory product, the proportions of the various components should be juggled until the desired effect is obtained. The proportion of PVP should be increased or reduced until the correct degree of hair setting is attained; the alcohol content should be increased or decreased until the solution evaporates at the desired rate after spraying.

Aqueous Brilliantine: *Is it possible to make a brilliantine hair dressing that will not be too greasy and still keep the hair in place and impart luster to it. Can this be done without the use of oils?* HAVANA.

As a matter of fact, a quite satisfactory hair dressing can be made by the use of certain glycol derivatives—polyethylene and polypropylene glycols—which have the desired viscosity. These are dissolved to the extent of 5 to 15 per cent in a mixture of alcohol and water to assure rapid evaporation of the vehicle. A suitable lanolin derivative may also be included to assist in keeping the hair in place and for conditioning.

Tablet Dentifrice: *We have read that tablets are being made in the United States to replace the use of tooth paste and brush and would appreciate receiving further information about this type of product.* TANGIERS.

We know of no product of this type now being sold in this country. However, we have been intrigued by a related idea and have developed what seems to be an effective and satisfactory product. Actual tooth cleaning requires the mechanical abrasion of a brush. Dental hygiene, such as mouth freshness and counteracting of tooth decay between the morning and evening brushings, can be accomplished by a properly formulated tablet or lozenge.

Nail Hardening: *There are several nail hardening formulations on the market and we would appreciate any information you could supply us concerning their composition.* MIAMI.

We have not had the opportunity to examine preparations of this type and are unfamiliar with claims made for them. Starting from scratch, on a speculative basis, a number of possibilities should be considered. First, is hardening desired, or is softening of the nail really what is needed to overcome brittleness? In line with Blank's work, which applies to closely related callus, loss of moisture results in hardness and brittleness, while absorption of moisture restores flexibility. If this is the factor involved in nail brittleness, then moisturing should be of value: oils, as in oily polish removers, may be relatively ineffective. In some instances, it might be theoretically possible to increase the tensile strength of keratin in the nail by converting residual SH groups to the disulfide linkage and by increasing hydrogen bonding, but it is not easy to convert this kind of theory to practice. In some nutritional deficiencies the nails are adversely affected and where a cystine shortage is present, it is possible that the condition can be improved by the use of protein high in cystine, like gelatin. Whether gelatin is useful where there is no demonstrable cystine deficiency is not altogether clear-cut.

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Zinc oxide neutralizes perspiration acids.

Sunburn-ray screen
Zinc oxide is opaque to ultraviolet light.

2. PHARMACEUTICAL PROPERTIES

Zinc oxide is widely used in dermatology in the form of zinc oxide ointment and calamine lotion.

It owes its popularity, according to one recognized authority,* to a combination of at least three qualities: it is non-toxic, protective and mildly astringent.

* *The Dispensatory of the United States of America, 1950 Edition*

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Perfume		0.05
Water	To Make	100.00

*Glyceryl Monostearate, self-emulsifying (Glyco)

Dimethyl hydantoin formaldehyde resin (DMHF Resin) is being used in aerosol hair sprays and in finger-wave lotions. Aerosol hair spray preparations were originally based on shellac and later polyvinyl pyrrolidone (PVP) began to gain favor. Shortages of PVP as well as certain disadvantages such as hygroscopicity and poor odor have led to the investigation of other film forming materials for this purpose. DMHF Resin may be used either alone or in combination with PVP, shellac, polyvinyl acetate, or ethyl cellulose, to give satisfactory products. A typical starting formulation based on DMHF Resin is as follows:

Aerosol Hair Spray

Concentrate per cent	Formulation Ingredients
5.0	DMHF RESIN, Refined Grade
0.5	Liquid Lanolin Fraction
0.5	Polyethylene Glycol 400 Mono Laurate (Glyco)
1.0	Perfume
93.0	Anhydrous Alcohol
	Charge per cent
	40 Concentrate (Above)
	60 Propellent
	100

Manufacturing Procedure

1. Dissolve DMHF RESIN in Alcohol.
2. Add all other ingredients but propellent.
3. Heat slightly, allow to stand overnight, filter.
4. Add propellent.

Another formulation which has been developed based on a blend of DMHF RESIN with polyvinyl acetate is:

Ethanol	**600.00**
Monoethanolamine	**2.00**
Polyvinyl Acetate ("Gelva" C3V-10M)	**15.00**
DMHF RESIN, Refined Grade	**3.00**
Perfume	**0.50**
***"Lanogel" 41**	**0.15**

Forty per cent of this concentrate and 60 per cent of propellent is used. The propellent consists of 60 per cent of "Freon" 11 and 40 per cent of "Freon" 12.

A typical formulation for a finger-wave lotion follows:

Water	**602.00**
Monoethanolamine	**2.00**
Polyvinyl Acetate ("Gelva" C3V-10M)	**12.00**
DMHF RESIN, Refined Grade	**2.50**
Perfume	**0.50**
***"Lanogel" 41**	**0.15**

In these formulations the monoethanolamine is used to solubilize the polyvinyl acetate which is only soluble in alkaline aqueous solutions. The use of a volatile base or of ammonia would tend to leave an insoluble film on drying. Films made with polyvinyl acetate alone are too stiff to be practical in such preparations and it has been found that a combination of DMHF RESIN with polyvinyl acetate modifies the film, softening it to just the required degree.

*A soluble lanolin derivative mfd. by Robinson-Wagner Co., New York City

"Lanogel" 41 or similar Lanolin derivative is suggested for emollience and hair-conditioning effect.

DMHF RESIN has been found superior to the gums which are usually used in these lotion-type preparations, since it will not become cloudy on standing or support bacterial or mold growth.

DMHF RESIN should be particularly interesting in all applications in which gums or other colloids are employed since it is a synthetic chemical readily available and manufactured to strict specifications. DMHF RESIN is currently being used in some non-cosmetic applications as a suspending agent for pigments and as an emulsion stabilizer, and these properties should be interesting to the cosmetic chemist as well.

Although DMHF RESIN and MDMH are being used in cosmetic formulations, we believe that the surface has only been scratched with regard to potential uses for this type of product and a great deal of work is currently under way to learn more about these compounds and their possible applications. We are convinced that further investigations of the properties of these materials will be well rewarded.

CONSUMER EVALUATIONS OF NEW PRODUCTS

(Continued from page 309)

are packaged in similar containers, identifiable only by code letters or numbers, and tested on a split sample basis. Paired comparisons are usually used in large consumer tests.

The product tests that Lever Bros. conducted in the development of their laundry detergent *Breeze* amply illustrates the importance of such tests.

> "Lever's consumer panels had ticked off no less than 51 separate comparison tests, and its research staff had tabulated the results of 22,850 personal interviews . . . . For the blind tests on Breeze, each selected housewife got two packages, blank except for identifying numbers, a set of instructions and a questionnaire. In some cases, the women questioned had already received the blind packages; in others, the field workers brought them along and personally clocked the Breeze's performance against its rivals."[1]

As indicated in the Breeze testing program, there are two ways of conducting product tests: personal placements tests and those conducted by mail on established consumer panels. Much controversy exists over both methods. Some proponents of placement tests argue that "better" answers are obtained as the interviewer is instructed to "probe" when a respondent replies "I just like it," or "It's a good product" or "I don't know." Probing in practice has its pitfalls. Any stress placed upon the respondent in an attempt to get a detailed answer may annoy the respondent, putting him on the defensive, or it may deviate from "consumer conditions" by bringing forth answers that

[1] "How Lever Markets a New Product" **Tide**, October 29, 1948.

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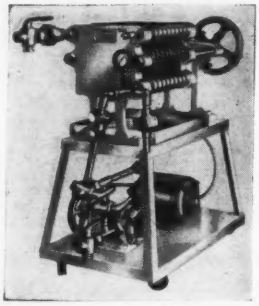

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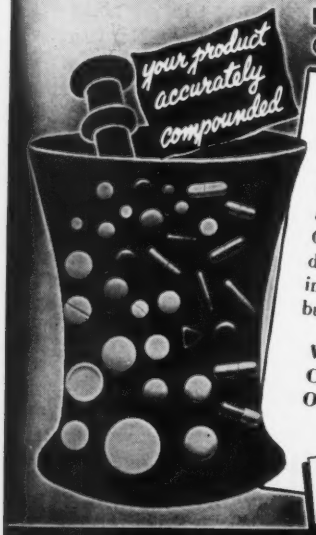

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are not spontaneous reactions such as those that exist in the impulse buying situations typical of the purchase of many consumer convenience goods. Probing must be skillfully done, particularly when the interviewer is a strong personality determined to get an answer.

On the positive side, placement testing offers some measure of secrecy for the product and the manufacturer as the testers can be more carefully screened. This can be a very important consideration to the manufacturer, particularly if the product is one which may invite quick imitation by the competition. Another point favoring placement testing is that in face-to-face interviews, the questionnaire may be more detailed, and the questions can be asked and answered without the respondent knowing what is coming next. Also some checks can be made to be sure the respondents' answers are hung on the right product.

Consumer tests conducted by mail have the advantage of being more economical and of avoiding interviewer bias. It is often possible to obtain as much usable information by mail as it is by personal interview. I have undertaken experiments where a product test was conducted by mail at the same time as a personal placement test was being done on the same two products, and the results confirmed each other. However, testing by mail also has its limitations. It usually takes longer, particularly if one of the objectives is to get as large a response as possible thus cutting the problem of non-response. If the questionnaires are mailed with the products, many of the panel members will "test" for the points listed on the questionnaires. Also any checklist may influence the participants' answers to the open end questions as the respondent has the opportunity to read all the questions before he begins to answer any of them. Some of the answers may be too general to be of much use. For instance, many respondents may say that they do not like the perfume of one of the products, but they do not tell you what it is that they do not like about it, such as, it is too strong, too mild, too sweet, too spicy, etc. Such information would be most valuable as a guide toward a more acceptable perfume.

One disadvantage of paired comparison tests—either by mail or by personal interviews—is that the testing period is generally not long enough, particularly for cosmetics and toilet goods where there conceivably could be some product changes over a period of time. These may not come to light in a two-week test. On the other hand, the big advantage of paired comparisons is that one product is pitted directly against the other and thus the participant in the test has a basis for his reactions, and the manufacturer has a basis for evaluating the results. Such is not the case with monadic testing where a product is tested by itself. This type of testing is usually done only when there is nothing comparable available with which to compare the new product—when a manufacturer wants some consumer reaction to a new product cate-

gory or to an old product with a completely new twist.

Examples of monadic testing would be such firsts as the first aerosol product, the first roll-on deodorant, the first frozen packaged foods, etc., provided, of course, they were tested by themselves.

Monadic Testing—Evaluating The Product Concept:

Testing a product singly closely simulates what actually happens when a product is purchased in the market and taken home to be tried. In that case there is no direct comparison with another product. The consumer compares it against his favorite brand or some other arbitrary frame of reference based on his memory. The actual measurement which is derived from a monadic test is an absolute measurement which furnishes an arbitrary rating for the product.

One problem that exists in a monadic test to a greater extent than in paired comparisons is that the consumer is apt to evaluate the test product as a "gift" and therefore tend to favor it, or think that he "really has to say something nice about it." In one specific test which was made to try to evaluate this "gift" influence, 68 per cent of the respondents said they preferred the test product to their favorite brand, even though the test product actually was their favorite brand with a concealed identity. Thus the techniques used in carrying out the product test are of positive interest to management who must evaluate the findings in light of *all* the facts. If the marketing consultant who was responsible for the test was able to devise a means of deflating the results to bring them closer to reality, his methodology should be made known along with the findings of the test.

The evaluation of the findings of the test is one of the most difficult and most important aspects of product testings. In order to discuss some of the problems involved it should be pointed out that there are generally three parts to a product test as far as the findings are concerned. (This is assuming the test is a paired comparison one). The first section deals with the overall preference between the two products and the principal reasons for this preference. In most cases, this first part also includes the reasons why the other product was not liked as well. Part two deals with a comparison of specific characteristics of the test products—the perfume, consistency, effectiveness, etc. Part three compares the preference between that for one of the test products with the usual brand.

Analysis of the Preference Between Test Products:

After it is established that the products were tested according to instructions, the first question generally asked is: "Which one of the test products did you prefer?" There appears to be three basic ways to present a summation of the preference votes:

1. Those who express no preference, or say they don't know are eliminated. Then the preference

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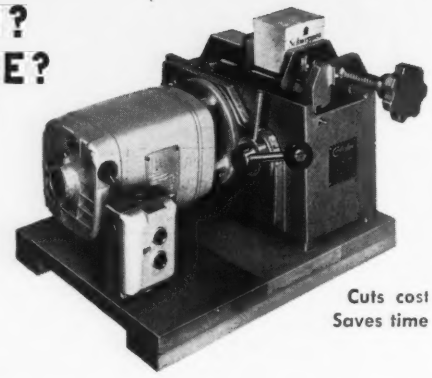

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for Product A as against Product B is expressed in terms of 100 per cent. An example of this would be if 200 people preferred A and 300 preferred B while 100 respondents expressed no preference, the results would be shown as 40 per cent preferred A and 60 per cent preferred B. The implied assumption is that the no preference group was actually divided in the same ratio as those who expressed an opinion, but they just did not bother to express themselves.

2. A second method is to interpret the no preference votes as meaning the respondents were unable to tell the difference between the two products and that if they had guessed, their votes would probably have fallen equally on the products. On this basis, the 100 people who exhibit no preference would be apportioned 50 to the A's and 50 to the B's, making the relative proportions 42 per cent preferring A, and 58 per cent preferring B.
3. A third method is to present the percentage preferences for A, for B, and for the "no preference." To use the same example again, the tabulation would show that A was preferred by 33 per cent, B was preferred by 50 per cent and 17 per cent expressed no preference.

Although considerable controversy exists over the best method of handling this preference vote, the problem can be simplified somewhat by giving the participants in the test a choice between A, B, "Like Both Equally" and "Dislike Both." This clarifies the no preference vote as there is a distinct difference between liking the products and disliking them and having no preference. Very often those who liked both prefer their usual brand and conversely, although some respondents dislike both products, they still may prefer them to products then on the market.

Product Characteristics:

In addition to the spontaneous reasons for preferring one test product, there may be need for specific information on certain qualities of the product. To obtain this, a checklist is included in the questionnaire whereby the respondent compares the two test products. The checklist is developed by a small pre-test with open end questions, or a literature search of trade journals which discuss the type of product and its characteristics, or simply by interviews with the laboratory personnel who worked on the development of the product and the product manager to determine what information must be obtained from the test.

One product may appeal to the consumer because of a specific characteristic or because of an overall favorable reaction to the product, and a product may be sold in spite of its deficiency in one or more characteristics. Among low-priced consumer goods, the various characteristics of a product generally may be grouped into the following classifications:

1. **Sense qualities:** They deal with the appearance

and color of the product, the taste, aroma, the feel or texture; i.e., those characteristics of the product that can be detected through the senses of sight, taste, feel sound or smell.

2. **Usage:** These characteristics are those which influence the consumer through his actual use of the product; its ease of preparation for a food product, or ease of application for cosmetics, paints, kitchen cleansers and ease of handling for some of the other packaged goods. The quality of "ease" is also evaluated for opening the package, closing it, storage, convenience in use and any other relevant point.
3. **Performance:** These qualities relate to what the product does and how well it does it. In the case of a ball-point pen, it would include the flow of ink, absorbency or quick-drying of ink, whether or not fingers were ink-stained while using the pen, etc. For a toothpaste, performance would mean cleaning the teeth and mouth, foaming action of the paste, controlling unpleasant mouth odors. With toothpastes it must be recognized that reactions to performance are subjective and cannot be measured with any accuracy. Also, experience has shown that if the flavor is liked, many respondents will say they like all its other characteristics. This, too, has to be taken into consideration when evaluating the findings of the test.
4. **After-effects:** A product's after-effects, again are subjective reactions of the consumers to the product, such as: "It gives me a lift" or "it relaxes me" or "it made my skin feel so good." This group of characteristics are also referred to as "sense gratifications." In a recent laxative test, one elderly respondent wrote that he was 86 years old and that he had taken Sal Hepatica every day for the last 52 years. The reason being that "Sal is not habit-forming." This was a "sense gratification" to him.

In some products, the sense qualities may be the most important, in others it may be performance or usage. In any event, it is important to determine which group or groups are essential to the product before the test begins.

Analysis of Brand Usage Information:

Getting reasonably accurate brand information is a problem in itself as it involves differentiating between "users" and "triers" of a product and making some attempt to verify the information. In a recent placement test, consumers were first asked what brands of toilet goods they were currently using and later asked to get the products for the interviewer. Although a tabulation was not kept, later discussions with the interviewers indicated many women simply do not recall accurately what brands of such household items as dentifrices, hand lotions and toilet soap they are using.

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This does not mean that brand information is useless but it should be accepted with caution.

If the sample is sufficiently large, it is possible to make some use of the information on brands; i.e., such as to compare the percentages of the various brands represented in the sample with their known share of market which will give a mild clue as to the representativeness of the sample in relation to the market.

In paired comparison tests, when consumers are asked to state which they preferred, the product in the test or their usual brand, their answers help give a relative evaluation of the general acceptance of the new product. Consumers may show a strong preference for one test product, but that preference may disappear when the product is compared with established brands. Therefore brand information helps to put the other findings of the test in better prospective.

In practice one of the difficulties involved in studying the findings of a product test is to realize that the results of the test are only obtained from one group at a certain time under certain conditions. Other difficulties involved in product testing are:

1. Assumptions cannot be measured. With consumer convenience goods it is usually assumed that any sample, sufficiently large is representative.
2. The assumption that the product test was carried out according to sound marketing research techniques. In reality, most product tests are empirical and most researchers at one time or another, after the results are in, have experienced the feeling of "if I knew then, what I know now . . ." Once a test is put; into operation some of the questions that bother the research director are: "Could the sample have been better designed?" "Will it be carried out as planned?" "Was the questionnaire sufficiently pre-tested?" Etc. True, some of these difficulties could be eliminated by further pre-testing of the questionnaire and further training of the researchers, but often time will not permit it. In the case of mail tests, there is always the question of non-response to some degree and the need to eliminate thoughtless or incomplete responses.
3. The assumption that all aspects of the test are known. Sometimes something happens in the course of the test that may effect the final results. Any such incident should be reported. For instance, in a recent deodorant test, one of the problems was to determine which deodorant was milder as far as being non-irritating. Quite by accident I discovered one interviewer asking? "Neither product irritated, did it?" and hastily checked "no" for the answer. It seems she was afraid that if the product irritated the respondent, she, the interviewer, would be held responsible. Consequently, in analyzing the results of that test, the answers to the irritation question had to be adjusted to overcome this distortion.

Thus it can be seen that product testing is a guide to the development and refinement of new products. Toward this end, the "new product" is first screened in the laboratories, then among office employees and finally tested on a large scale among consumers. There is no absolute formula for the types of test to be used, the number of tests, or for interpreting the results. Advantages and disadvantages of all phases have to be weighed in light of the product itself and with consideration to the time element and the ever-present budget. The findings of the test are the results of consumer usage of the product and equally important, they are the results of the research. Accordingly any pertinent data that effects the results should be presented. Finally, the results of the test should be considered from the overall point-of-view, i.e., the product preference vote should be related to the likes and dislikes of the product and particularly to the consumers' preference between the test products and their usual brands.

MONEY IN THE TILL

(Continued from page 311)

tions must be carefully determined by analysis of job element and the application of M.T.M. and/or time-study observations. Standards are expressed as a quantity performance per hour. For example: "hundred bottle hours" or "thousand box hours," etc. These performance standards involve all important factors, including product quality, and thus must be absolutely correct and a fair measure of production obtainable under plant conditions. Once set, they need not be changed even though pay rates may fluctuate. Adjustment of the standard on any job is needed only when operating conditions or methods are changed so as to materially affect the possibility of maintaining standard performance.

As an example of a typical earning calculation, suppose a worker is paid $1.10 per hour to fill boxes and the "Standard Hour" has been set at .45 hours per hundred boxes. In a typical 8 hr. day, he produces 2400 boxes, therefore his earned hours will be $\frac{2400 \times .45}{100}$ or 10.8 earned hours, and to arrive at his total day's pay, he simply multiplies his earned hours by his $1.10 hourly rate, which gives him $11.88. On this basis, he has earned himself a bonus, or incentive for above standard production amounting to $3.08 ($8.80 being his straight hourly wage at $1.10).

This type of incentive plan has much to recommend it besides its simplicity. Performance standards become the basis for production control, an important means for controlling costs and insuring profits. Also, they furnish a yardstock to allocate labor quotas to plant departments, thus developing a flexible, task

force of labor and becoming an element in the budgetary control program for top management. Whatever the particular incentive plan selected, its fair installation assures Management a labor cost in correct proportion to production. Unit costs are invariably reduced by a large percentage, since production invariably increases relative to a stabilized overhead. A fair incentive program rewards the worker according to his individual or group efforts, raises plant morale and, equally important, will tend to attract and hold a higher class, more ambitious and more intelligent type of worker. This is the best insurance for low cost, profitable operations and paves the way for an end to costly and unpleasant labor strikes.

Work Simplification

Inherent in the establishment of any type of wage incentive is a program of well thought out work simplification. Every rateable operation must be studied with two questions in mind: One—can the job be made simpler by providing the worker with well thought out adaptable work aids? Two—is the job classification fair?

Some examples of plant made work simplification gadgets include the use of: conveyors for transport—inclined chutes for flipover—spring loaded screw top jigs—foot pedals for valving—joggle plates for setting creams—roll chutes for short run labelling, etc. For the most part these gadgets can be made by your own maintenance man or foreman and the results will be astonishing. We will discuss more fully in another article the art of gadgeteering, together with some fine examples.

Administration

One of the biggest fears of Management with relation to the installation of an effective incentive system is that of administration and record keeping. A system of tear-off tickets, pre-priced at the production planning stage and issued by the department foreman is the answer to this problem, and a simple one at that. When the production foreman receives his production order, he has the necessary job tickets attached to it. These tickets are broken down into operational sequences and have on them the operation code or name, the quantity, the unit price and the total earnings. At the completion of the job, the foreman issues this tear-off ticket to the individual who has performed the work. He also issues tickets for time work usually based on the previous week's earnings average. At the end of the payroll period, the worker turns in his tickets to the production foreman and his pay is computed by simply adding the total earnings as shown by his turned in tickets.

The usual penalties for bad work and poor quality are inherent in the effective administration of an incentive system.

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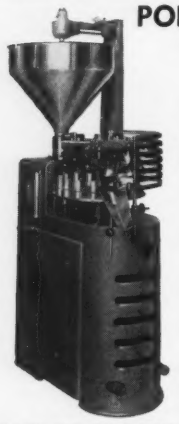

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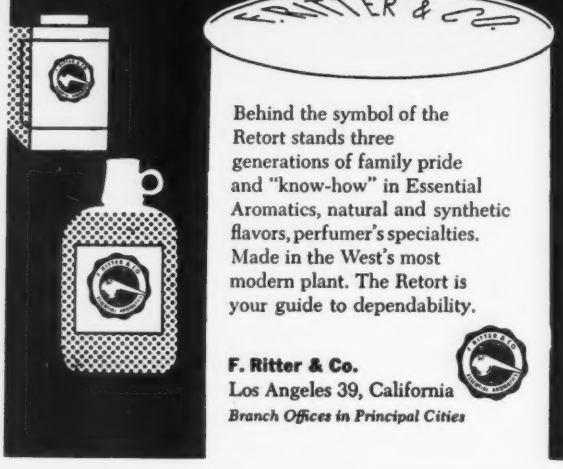

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LONTAB REPEAT ACTION TABLETS

(Continued from page 313)

would be able to sustain the initial effect of the medication by adding small increments at a measured rate during the remaining 6 to 7 hours that the tablet remained in the intestine.

After repeated experiments, the formula that was finally adopted for the core was based on a mixture of fats and solid, high-molecular weight waxes into which the Pyribenzamine Hydrochloride crystals were dispersed.

The result would be that when the tablet entered the stomach the outer coating would disperse immediately. At this point, the core would slowly be attacked as the surface waxes and fats began to erode. As the waxes and fats washed away, more antihistamine would be brought to the surface and be absorbed.

An important factor which assures the uniform release rate of the drug is that the Lontab erodes and does not break apart as is the case with enteric coated tablets. It remains an integral structure until it gets into the large intestine. The control of the release rate is a function of the wax structure and the design of the formula.

The special technique used in preparing the granulation for the core was a vital factor in insuring the controlled, consistent release rate.

A thermostatically controlled mixer with a series of mixing and sweep blades maintained the melted mixture of drug and acid-resistant components as a uniform liquid suspension. The latter flowed through a jacketed valve system onto a cooling drum which instantaneously formed a perfect solid film of the mixture. At extremely low temperatures, this film was ground into uniform particles which possess the characteristics necessary for flowing smoothly on the Manesty DryCota tableting machine.

The cores were compressed and automatically and instantly transferred to another compressing head on the machine which wrapped and compressed the coating around them.

Numerous checks of the cores and the coatings re-

vealed that both remained within 0.5 per cent of the desired content. In contrast, pan coating methods achieved results that were anywhere from 10 per cent to 50 per cent off.

The final step was to determine the release rate of the Lontabs. This was accomplished by tests of the tablets in simulated gastric and intestinal fluids.

The gastric fluid consisted of 2000 ml. of aqueous solution containing 28.0 grams of sodium chloride, 1.0 gram of potassium chloride, 0.12 grams calcium chloride anhydrous, 6.42 grams Pepsin, N. F. and 13.8 grams of concentrated hydrochloric acid. The pH of the solution was 1.2 ± 0.1.

For the intestinal fluid, 7.44 grams of Pancreatin and 120 grams of sodium bicarbonate were added to 7870 ml. of water. The pH of the solution was 8.0 ± 0.1.

For the disintegration tests, three Lontab tablets were placed into a U.S.P. XV Disintegration Time Apparatus basket fitted with a No. 40 mesh screen, instead of the specified No. 10 mesh screen. The basket containing the tablets was immersed in a 1000 ml. beaker into which 600 ml. of the fluid had been poured.

The basket was raised and lowered periodically, according to the U.S.P. XV method and the fluid maintained between 35° and 39° C.

The solution was removed at the end of one hour and the test continued for another hour with a new 600 ml. portion of the gastric fluid. The process was now repeated, on the same tablets, with 10 successive changes of simulated intestinal fluid, each change acting on the tablets for one hour and the solutions being retained for analysis. The total elapsed time for the disintegration test was 12 hours. Each solution was then analyzed for Pyribenzamine content.

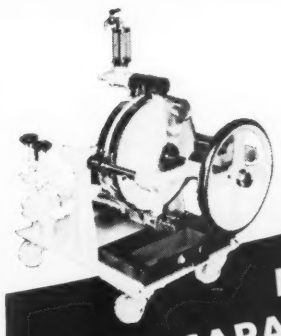
Although the effect of one Lontab equals that of three conventional tablets, the principle of releasing small "booster" doses of the medication actually reduced by one-third the amount of the antihistamine required. Thus, where the total dosage in three conventional tablets would be 150 mg. of Pyribenzamine, the Lontab needs only 100 mg. of the medication.

Use of the minimal required amount of the antihistamine also encourages use for "around the clock" allergic protection. One Lontab on arising and one before retiring is designated by CIBA as adequate dosage for 24-hour relief. Thus, the goal of relieving a maximum of discomfort with a minimum of effort and medication may have been achieved with Lontabs.

THE WILLIAMS BILL HR 9153

(*Continued from page 314*)

exempting the new ingredient from limitations of its use or establishing restrictions as to the use or area of application of the cosmetic containing the ingredient. An appeal for a hearing may be filed in 30 days by any person adversely affected by the regulation. The appeal will be decided upon preponderance of evidence



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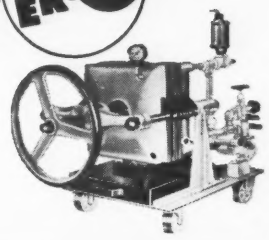

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and not substantial evidence. The regulation then issued will be based on substantial evidence. After the application has become effective, the Secretary on his own initiative or on the request of an interested person, may amend, modify or remove restrictions provided in a regulation, again with provisions for appeal.

"Nothing in this section is to be so construed as to imply consideration by the Secretary of the efficacy of a new cosmetic ingredient or new cosmetic."

Finally, Section 7 of the proposed bill provides for the listing of substances considered safe for use. "Within six months of the enactment of this Act, the Secretary shall cause to be published in the Federal Register a notice providing for the listing of substances deemed safe for use (with quantitative limitations where necessary) in cosmetics under normal conditions of use of such cosmetics. The Secretary shall from time to time by notice so published provide for listing of additional substances deemed safe for such use. Any interested person or organization may submit to the Secretary items to be included on such list. Nothing in this section is to be so construed as to imply that the omission of any substance from such list creates any inference or presumption that such omitted substance is not safe for use in a cosmetic."

This legislation, if enacted, would not impose impractical and unnecessary labelling burdens on the industry; would permit the use of published scientific evidence of safety without requiring the presence of the author of the paper; would not require an "Ad Hoc" committee made up of presumably open-minded but often personally prejudiced individuals. The burden of proof of safety of a new ingredient is, as it is at present in a practical sense, on the individual who wishes to use or to have the new ingredient used.

PATENT THOUGHTS AND TRENDS

(Continued from page 333)

The Fourco case held that 28 U.S.C. 1400 (b) is the sole and exclusive provision controlling venue in patent infringement actions.

Of the 34 cases in which petitions for certiorari were denied, the following are of especial interest:

Vanity Fair Mills, Inc. v. T. Eaton Co. Ltd., 109 USPQ 438, wherein the Second Circuit Court of Appeals held that it is not within the province of United States courts to determine the validity of Canadian trademark registrations.

Vanderveer v. Erie Malleable Iron Co., 111 USPQ 292, wherein the Third Circuit Court of Appeals held that a state court judgment of noninfringement in a suit for royalties precludes the patent owner from asserting infringement by same devices in a patent infringement action between the same parties.

Advisers, Inc. v. Wiesen-Hart, Inc., 111 USPQ 318, wherein the Sixth Circuit Court of Appeals held that innocent misstatement or clerical error, alleging date of publication later than actual date, in affidavit and

certificate of registration, unaccompanied by fraud or intent to extend statutory period of copyright protection, does not invalidate copyright.

Southern Saw Service, Inc. v. Pittsburgh-Erie Saw Corp., 111 USPQ 362, wherein the Fifth Circuit Court of Appeals held that 35 U.S.C. 252 gives one the right to continue using machine made or purchased prior to reissue without regard to extent of its use prior to reissue, subject only to requirement that use does not infringe original valid claim carried over into reissue.

The Court has granted certiorari in one case, one case is pending on appeal, and three cases are pending on petitions for writs of certiorari.

Certiorari has been granted in No. 90, Columbia Broadcasting System, Inc., et al. v. Loew's Inc. et al. This case is from the Ninth Circuit Court of Appeals which (112 USPQ 11) held that the doctrine of fair use does not apply to copying substance of copyrighted dramatic work, and presenting it, with few variations, as burlesque.

No. 238, Krasnow et al. v. United States, is pending on appeal from the District Court for the Eastern District of Pennsylvania which (110 USPQ 411) held that the Sherman Act was violated by a patent licensing agreement which fixed prices and restricted the grant of licenses to others.

The cases pending on petitions for writs of certiorari are:

No. 166, C.S. Johnson Co. v. Stromberg, is from the Court of Appeals for the Ninth Circuit which (113 USPQ 105) held invalid claims 1 and 5 of Johnson Patent No. 2, 138,172 for Batching Apparatus. The court held that the trial court had not abused its discretion where it postponed the trial following introduction of prior use evidence without compliance with the 30 day notice rule of 35 U.S.C. 282.

No. 216, Colgate-Palmolive Co. v. Carter Products, Inc., et al., is from the Court of Appeals for the Fourth Circuit which (113 USPQ 161) denied a motion for leave to move in the district court to be relieved of the effect of a stipulation admitting the infringement of certain patent claims.

No. 271, United Mfg. & Service Co. v. Holwin Corp., filed July 12, 1957, is from the Court of Appeals for the Seventh Circuit which (113 USPQ 242) held that a licensee sued for royalties must pay licensor's reasonable expenses incurred in opposing licensee's discovery motions seeking to produce evidence bearing on invalidity of patent inasmuch as licensee is estopped to attack validity.

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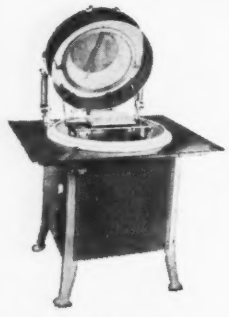

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Industry's Books . . .

Organic Chemistry, *by Louise Kelley, Professor of Organic Chemistry, Goucher College, Second Ed., 757 pp., McGraw-Hill Book Co., Inc., New York, (1957), cloth,* **$7.50.**

Here is a readily understandable introduction to the complex subject of organic chemistry. Especially suited for chemistry majors and chemical engineers, this text presents not only the factual material regarding organic compounds and their reactions, but also the theoretical foundation. This second edition provides much new theoretical material; and additional information on industrial processes, new polymers, new drugs and antibiotics. The new Appendix B presents in detail a simple method of balancing organic reactions of the oxidation-reduction type and includes several of the more commonly used half-reactions.

Scoville's The Art of Compounding, *by Glenn L. Jenkins, Purdue University, Don E. Francke, University of Michigan, Edward A. Brechl, University of North Carolina, and Glen J. Sperandio, Purdue University, Ninth Ed., 551 pp., The Blakiston Div. McGraw-Hill Book Co., Inc., New York, (1957), cloth,* **$11.00.**

The entire text of this Ninth Edition, as in former editions, concentrates on the study of compounding and dispensing. Among the features of the Ninth Edition are a new chapter on ophthalmic solutions, and a new table of Metric and Apothecary Equivalents. The chapters on ointments and suspensions have been lengthened. The section on incompatibilities is arranged so that it may be used as a separate, one-semester course, and features many new items. All prescription examples have been revised, many new ones added and older ones deleted.

A Manual of Pharmacology and its Applications to Therapeutics and Toxicology, *by Torald Sollmann, M.D., Professor Emeritus of Pharmacology and Materia Medica, School of Medicine, Western Reserve University, Eighth Ed., 1535 pp., W. B. Saunders Co., Phila., (1957), cloth,* **$20.00.**

The purpose of this Manual is to furnish a guide through the complexities of modern pharmacology—the actions and uses of drugs. Contributions to this subject are being published at an ever-accelerating rate and the waelth of material is indeed confusing. The Manual aims to summarize critically the chief features of these contributions. As in previous editions, the text in ordinary type presents the material that all students should aim to know; small type contains data that would be consulted as special occasion arises. The references are intended to show where further details may be found.

A Guide To The Literature of Chemistry, *by E. J. Crane, Director and Editor "The Chemical Abstracts Service, Austin M. Patterson, Formerly Professor of Chemistry Antioch College, and Eleanor B. Marr, Assistant Professor of Chemistry Hunter College, John Wiley & Sons, Inc., New York, (1957), Second Ed., Cloth,* **$9.50.**

This is an effective key to the vast chemical literature. The book is completely revised and expanded in its second edition—brought up to date to keep pace with the rapid growth of chemical literature in recent years. The authors analyze various kinds of sources of chemical information; describe and classify important journals, books, and other publications; give ways of keeping up to date on various sources; and discuss libraries and indexes in relation to literature searches.

Mechanisms Of Hypertension, With a Consideration of Atherosclerosis, *by Henry Alfred Schroeder, M.D., Washington University School of Medicine, 379 pp., Charles C. Thomas —Publisher, Springfield, Ill., (1957), cloth,* **$9.**

By applying what is known of the specific actions of new drugs employed in arterial hypertension to basic factors concerned in pathogenesis, some insight into biochemical mechanisms resulting in generalized vasospasm is indicated. Each drug is examined in the light of the vasospastic mechanism operating in human patients, in order to show the logic of its use and its therapeutic limits. Agents and procedures operative against neurogenic, nephrogenic and adronocortical influences are discussed. Part of this book is concerned with those influences believed to result from the habits of Western Civilization in regard to food and drink.

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Algin Corporation of America . . . 390
America Aromatics, Inc. . . . 402
American Can Company . . . Facing 332
American Cholesterol Products, Inc. . . . 344
American Cyanamid Company . . . Facing 291
American Sterilizer Company . . . Facing 356
Anchor Hocking Glass Company . . . 327
Atlas Powder Company . . . Bet. 282-283

Baker & Adamson, General Chemical Division Allied Chemical & Dye Corp. . . . Facing 286
Baker Chemical Company, J. T. . . . Facing 282
Barr & Company, G. . . . 328

Camilli, Albert & Laloue, Inc. . . . 408
Carr-Lowrey Glass Company . . . 335
Cavalla, Inc., A. . . . 407
Chaleyer, Inc., Ph. . . . 385
Chemical Industries Exposition . . . 399
Chiris Company, Inc., Antoine . . . 286
Chrystal Company, Charles B. . . . 381
Clintbrook Chemical Company, Inc. . . . 397
Colonial Applicator Company . . . 329
Colton Company, Arthur . . . Facing 357
Continental Can Company, Inc. . . . 316, Facing 324, Facing 348
Crown Cork & Seal Company, Inc. . . . 336
Crown Cork & Seal Company, Inc.—Can Division . . . 318

De Laire, Inc. . . . Facing 380
Delta Chemical Works . . . 407
Distillation Products Industries . . . 374
Dodge & Olcott, Inc. . . . 383
Dow Chemical Company, Inc. . . . 271, Facing 287, 352, 379
Dow Corning Corporation . . . 342
Dragoco, Inc. . . . Bet. 274-275
Dunkel & Company, Inc., Paul A. . . . 403
Du Pont De Nemours & Company, E. I. "Freon" Products Division . . . 320
Durlin Company . . . Facing 275

Eastman Chemical Products, Inc. . . . 382
Emery Industries, Inc. . . . 371
Encapsulations, Inc. . . . 404
Ertel Engineering Corporation . . . 401

Fairmount Chemical Company, Inc. . . . 407
Felton Chemical Company, Inc. . . . 277
Filpaco Industries—The Filter Paper Company . . . 394
Firmenich Incorporated . . . Facing 290
Florasynth Laboratories, Inc. . . . 353
Fluid Chemical Company, Inc. . . . Facing 337
Fritsche Brothers, Inc. . . . Bet. 372-373

General Aniline & Film Corporation . . . 292
Givaudan-Delawanna, Inc. . . . Bet. 298-299, 346
Gottscho, Inc., Adolph . . . 384
Griffin-Rutgers, Inc. . . . 396
Gross & Company, A. . . . 278

Hanovia Chemical & Manufacturing Company . 330
Harchem Division, Wallace & Tiernan, Inc. . . . 386
Haring Equipment Corporation . . . 400
Hazel Atlas Glass Division of Continental Can Company . . . Facing 348
Heyden-Newport Chemical Corporation . . . 351
Hoffmann-La Roche Aromatics Division . . . 284-285
Hoffmann-La Roche, Inc. . . . 267; Bet. 364-365
Huisking & Company, Charles L. . . . 397

Imco Container Corporation . . . Facing 336
International Wax Refining Company . . . 397
C. E. Ising Corporation . . . 407
Ivers Lee Company . . . 360

Kelco Company . . . 395
Kiefer Machine Co., Karl . . . 389
Kolmar Laboratories . . . Facing 274

Lautier Fils . . . 294
Lueders & Company, George . . . 287

Mallinckrodt Chemical Works . . . Facing 299
Malmstrom & Company, N. I. . . . 393
Maryland Glass Corporation . . . Facing 325
Mathieu, Inc., Charles . . . 392
Merchants Chemical Company, Inc. . . . 275
Merck & Company, Inc. . . . 288-289
Metalsmiths Division of Orange Roller Bearing Company . . . 392
The Miranol Chemical Company, Inc. . . . 281

New Jersey Zinc Company, The . . . 391
New York Quinine & Chemical Works, Inc. . . . 276
Norda Essential Oil & Chemical Co. . . . Cover 2
Nysco Laboratories, Inc. . . . 407

Old Empire, Inc. . . . 401
Orbis Products Corporation . . . 366
Owens-Illinois Glass Company . . . 322, Bet. 332-333

Penick & Company, S. B. . . . 296
Pennsylvania Glass Products Company, Inc. . . . 337
Pennsylvania Refining Company . . . 387
Pfaltz & Bauer, Inc. . . . 407
Pfizer & Company, Inc., Charles . . . Cover 4
Plume & Atwood Manufacturing Company . . . Facing 333
Polak's Frutal Works . . . 270
Polak & Schwarz, Inc. . . . 282
Popper & Sons, Inc. . . . 404
Potdevin Machine Company . . . 381
Precision Valve Corporation . . . Facing 349
Progressive Machine Works . . . 407

Read Standard, A Division of Capitol Products Corporation . . . 358
Reheis Company, Inc. . . . 290
Richford Corporation . . . 334
F. Ritter & Company . . . 400
Robinson Wagner Company, Inc. . . . Facing 298
Rohm & Haas Company . . . Facing 381

Scovill Manufacturing Company . . . Facing 341
Sheffield Tube Corporation, The . . . Facing 340
Shell Chemical Corporation . . . 280
Sindar Corporation . . . 368
Sonneborn Sons, Inc., L. . . . 283
Standard Collapsible Tube Company . . . 399
Standard Pharmacal Company . . . 394
Sterwin Chemicals, Inc. . . . 269
Stokes Corporation, F. J. . . . 362-363
Synfleur Scientific Laboratories, Inc. . . . 350

Tamms Industries, Inc. . . . 407

Ungerer & Company . . . Cover 3
Upjohn Company, The . . . 274
U. S. Industrial Chemical Co., Div. of National Distillers & Chemical Corp. . . . Bet. 388-389
U. S. Bottlers Machinery Company . . . 354

Van Dyk & Company, Inc. . . . 272
van Ameringen-Haebler, Inc. . . . 338-339
Verona Chemical Company . . . Facing 283
Vitamerican Oil Corporation . . . 402

Wallace & Tiernan, Inc. . . . 386
Welch, Holme & Clark Company . . . 396
Will & Baumer Candle Company, Inc. . . . 279
Willson, Inc., R. B. . . . 273

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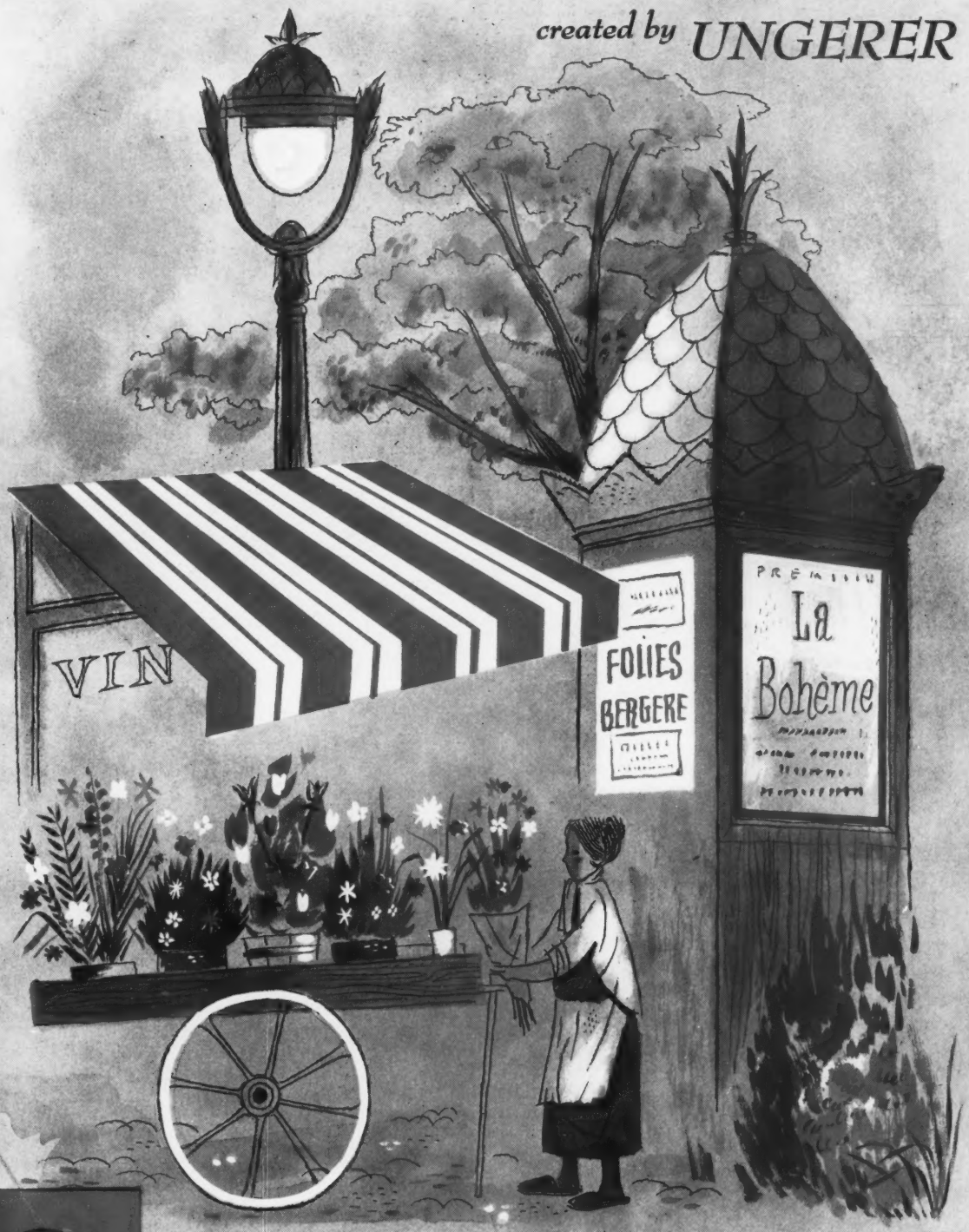

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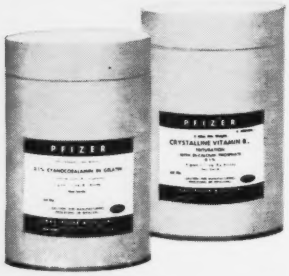

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